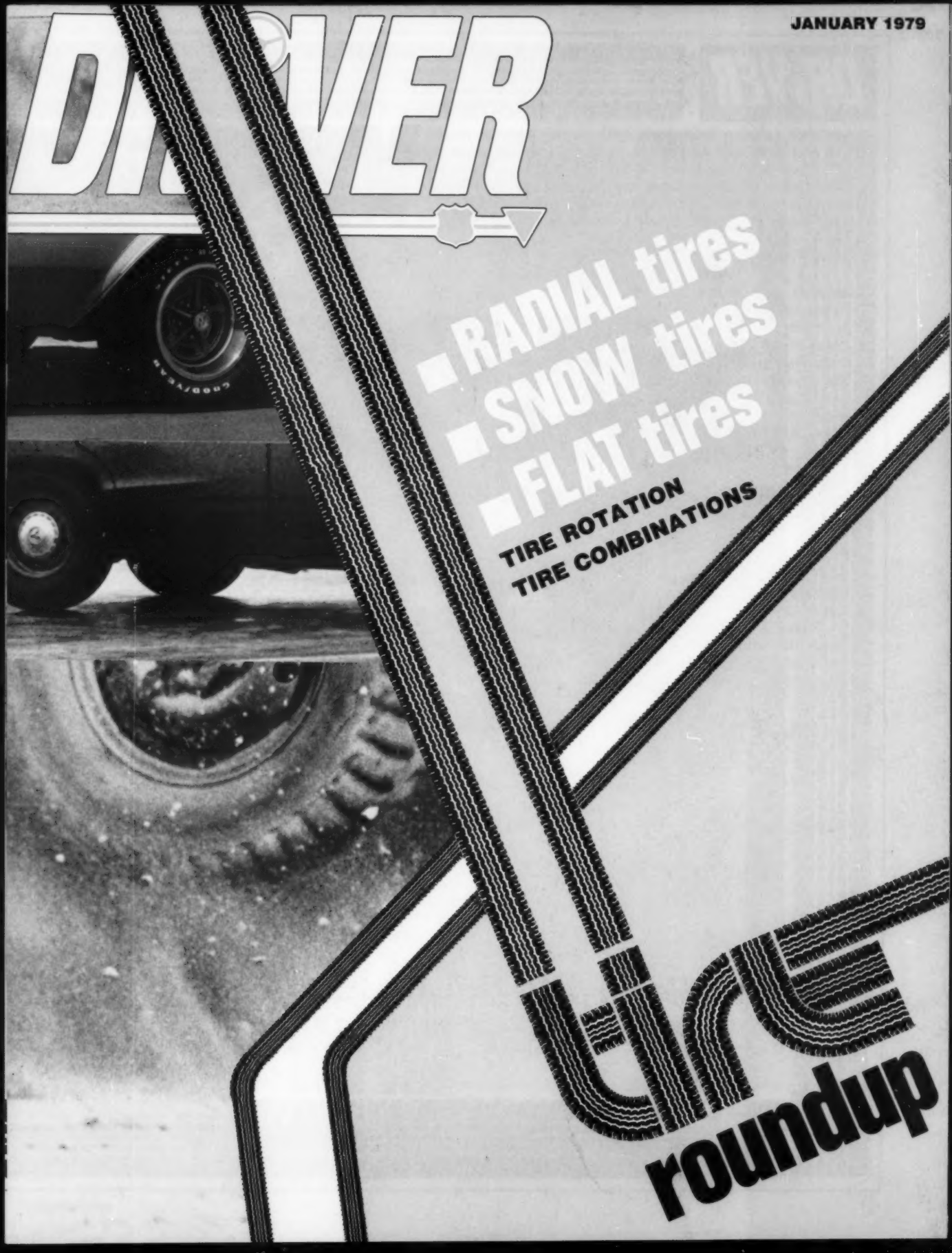
DRIVER

JANUARY 1979



- RADIAL tires
- SNOW tires
- FLAT tires

TIRE ROTATION
TIRE COMBINATIONS

roundup

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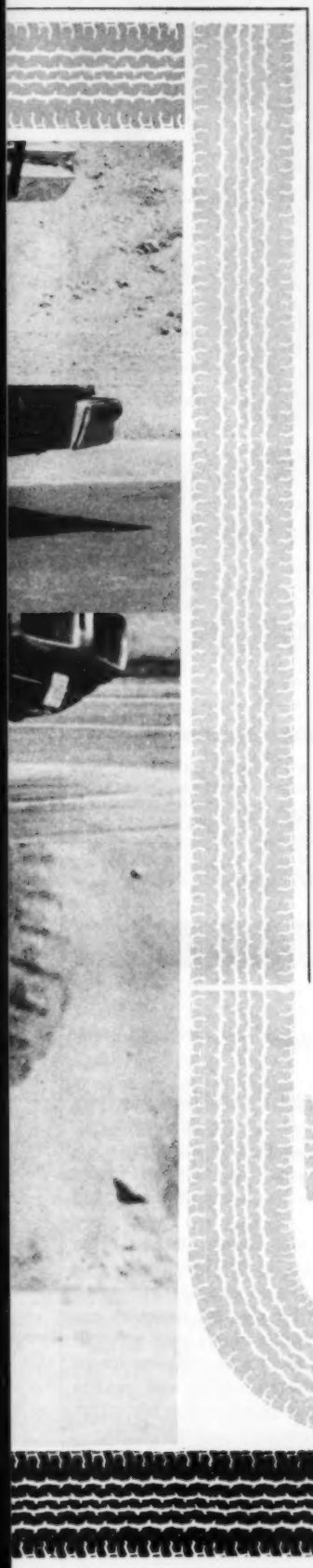

What is toroidal in shape, a flexible-membrane pressure vessel mechanically, a high-performance composite structurally, and a unit composed principally of long-chain macromolecules chemically?

If you said a computer-designed atomic reactor, you're wrong . . . the object described is a tire! Tires have evolved from the 1907 treadless to today's high-performance, ultra-complicated, super-sticking, long-wearing hunk of poly-butadine/styrene/butadine.

Well, what does all this mean to you, the tire user? It means the causalness with which we used to pick out a new set of shoes for our cars is no longer acceptable in terms of buying exactly the type of tire we need.

If you haven't already, this is the time to take a good look at your car's tires. You want to make sure there's plenty of tread and that the tires are wearing evenly. Uneven wear is no biggie—just a few bucks at the local alignment and balance shop. But if the tread wear indicators are showing (solid bands of rubber across the tread, see drawing) then you're low on tread and in definite need of new rubber.

Now don't start groaning thinking about the cost of new tires because we've got good news for you. The price of tires has increased only about one-quarter what the cost of other goods and service increased in the last five years. So smile as you fork over your life savings for a set of tires. You're really getting a bargain.

If you're in need of tires, chances are you're thinking radial. The radial revolution has taken the country by storm in the last few years with many new cars coming with radials and nearly all new cars equipped with radial-tuned suspensions. And with the gas prices up and not ever coming down, most everybody knows about the fuel-saving effect of radials.

However, there are some considerations with radials that we need to talk about as well as some other tire information you may find helpful. First, let's define our terms.

Tire Types: "Bias," "belted," and "radial" are probably familiar terms to most of you if you've checked into tires in the last few years. These terms actually refer to the tire's ply construction. However, the real difference between these tires are the handling characteristics, tread strength, tread mileage, and price.

continued

roundup

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
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JAN

VOLUME 12 NUMBER 8

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THE EDITOR SPEAKS DOUBLE CLUTCH

SHOPPING FOR CAR INSURANCE

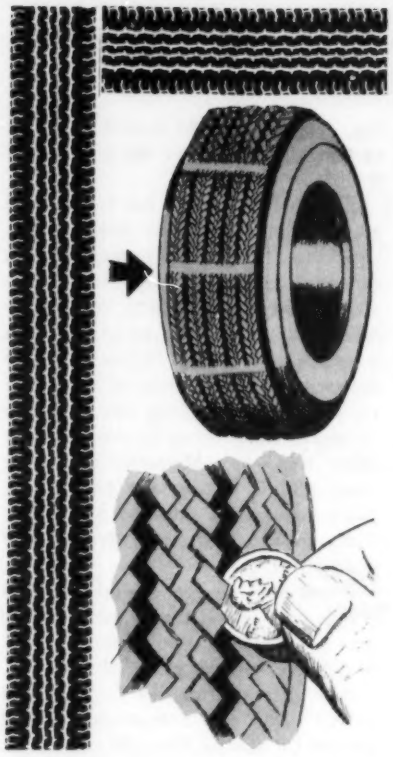
The auto manufacturers are getting worried about the high cost of insurance for new-car buyers under 25. A young person may be perfectly able to make monthly payments on the car itself, but the insurance premiums are more than he can handle. Even if you're over 25 and buying "used," insurance is a big bite on the budget.

Remember that insurance rates do vary, and it may be just as important for you to comparison-shop for insurance as for the vehicle itself. You can save as much as 40% if you buy carefully, and we are talking about reputable insurance companies whose names are recognized all over the nation.

Why do premiums vary so much for the same car and driver? Well,differences in premiums depend on such things as whether the company must pay dividends to shareholders, how lucky the company has been in recruiting accident-free drivers, and how actual losses compare with the losses the company projected.

Premiums also depend on how often the company's insured motorists are involved in law suits and how expensive it is to repair the cars the company has insured. Elsewhere in this issue you will find an item about how collision losses vary with different makes and models of cars. This variance has a big effect on both the company and the buyer.

Is it worth an hour of your time to comparison-shop (you can do it by phone) to save $300? That's the spread in DRIVER's hometown. You might do even better.



Two ways to tell when it's time to re-tire are shown here. (top) Built-in "wear bars" appear as smooth bands across the face of the tire when only 1/16-inch of tread remains. (bottom) Insert a penny in a tread groove. If the top of Lincoln's head shows, tread is worn below 1/16-inch, the danger line.

The bias-ply or conventional tire is the lowest priced tire, but offers the least tread mileage at the highest cost per mile. The bias tire is best suited to light around-town type driving. It wears quickly and is most prone to failure under hard use.

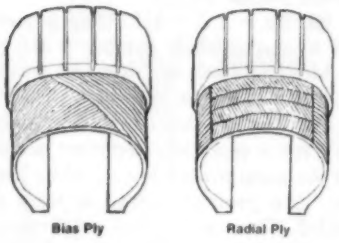
The bias-belted tire is simply an improvement on the conventional tire. It uses special cord belts underneath the tread to add strength and stability to the tread. The belted tire is stronger and offers better handling and tread mileage than the conventional tire. It is standard equipment on new cars that do not come with radials.

Belts: Now that belted and radial tires (also belted) have overtaken the tire world, the question of belts is bothering some people. For instance, many people think a belted tire is always fiberglass-belted and a radial must be made with steel. Actually, the tread support belts used in both of these tire types may be rayon, polyester, fiberglass, aramid, or steel. The difference is the strength, guarantee, and price of the tires, depending on the type of belts used.

An all-fabric tire is usually less expensive, but carries less of a guarantee than a tire belted with fiberglass or steel. Steel and aramid are considered to be the strongest belting materials, but are also the most expensive. Fiberglass generally runs pretty close in both strength and price.

The important point is to know that there is a difference in the construction of belted and radial tires. This is especially true with radials – many people buy radials assuming they are steel-belted when they may be an all-fabric tire. A tire dealer can explain a particular tire's construction and relative advantages, so you can choose the tire which best fits your needs and budget. The tire's construction along with plenty of other valuable info about the tire is also clearly molded into the sidewall of every tire made since 1968.

continued



The difference in construction between bias-ply tires (left) and radial tires (right) is apparent in this cutaway.

New metric markings and tire size comparison chart with metric update.

Courtesy of
Tire Industry Safety Council

NUMERIC		ALPHA NUMERIC			METRIC		
1965 & LATER	50 SERIES	60 SERIES	70 SERIES	78 SERIES	60 SERIES MILLIMETER	70 SERIES MILLIMETER	80 SERIES MILLIMETER
560-14:			A70-15	A78-15			155/80-14
600-13		A60-13	A70-13	A78-13	195/60-13	185/70-13	165/80-13
600-15		B60-15	B70-15	B78-15		185/70-15	165/80-15
645-14				B78-14		185/70-14	165/80-14
650-13	B50-13	B60-13	B70-13	B78-13			173/80-13
685-15		C60-15	C70-15	C78-15			175/80-15
695-14	C50-14	C60-14	C70-14	C78-14	215/60-14		175/80-14
700-13	C50-13	C60-13	C70-13	C78-13	215/60-13		185/80-13
			D70-15	D78-15	215/60-15	195/70-15	
		D60-13	D70-13	D78-13			
		D60-14	D70-14	D78-14	225/60-14	200/70-14	
		E60-13		E78-13			195/80-13
735-14		E60-14	E70-14	E78-14	235/60-14	205/70-14	185/80-14
735-15	E50-15	E60-15	E70-15	E78-15	225/60-15	205/70-15	185/80-15
775-14	F50-14	F60-14	F70-14	F78-14	245/60-14	215/70-14	195/80-14
775-15		F60-15	F70-15	F78-15	235-60-15	215/70-15	195/80-15
825-14	G50-14	G60-14	G70-14	G78-14	245/60-14	225/70-14	205/80-14
825-15	G50-15	G60-15	G70-15	G78-15	235/60-15	225/70-15	205/80-15
855-14	H50-14	H60-14	H70-14	H78-14	255/60-14	230/70-14	215/80-14
855-15	H50-15	H60-15	H70-15	H78-15	255/60-15	235/70-15	215/80-15
885-14		J60-14	J70-14	J78-14	275/60-14	245/70-14	225/80-14
885-15		J60-15	J70-15	J78-15	265/60-15	245/70-15	225/80-15
900-15			K70-15				
		L60-14	L70-14				
915-15	L50-15	L60-15	L70-15	L78-15	275/60-15		235/80-15
	N50-14						
890-15	N50-15			N78-15			

Retreads: If you're strapped for money, consider retreads. They cost only about half as much as new tires but provide almost the same guarantee.

Retreads are offered in radial, belted-bias and bias-ply construction in almost all sizes. They cost so much less than a new tire because the original tire body is reused. The tire body is the major cost of a tire. Before a tire body is reused, it is subject to a meticulous inspection to be sure it is not damaged. A new tread then is applied and it is bonded to the body under heat and pressure in a vulcanizing press.

Retreading is simply a form of recycling, or reusing materials which otherwise would be scrapped.

One item that still baffles the average tire buyer is the current tire size-service designation code. Basically, the new code indicates the very same thing the old code did, but in a different way. For instance, if a tire was labeled 7.75-14 under the old system, you knew it was about 7¾ inches wide and fit on a 14-inch rim.

A popular replacement size for that particular tire would be labeled F78-14 today. The 14 means it fits on a 14-inch rim, as before, and the F refers to the tire's size – the equivalent of a 7.75 in this case. The number following the letter is an addition to the old code, and is the information you need to be most concerned with. This is the aspect ratio, or the tire's body height compared to its width. In this case, the tire is 78 percent as high as it is wide.

A new family of passenger car tires with metric markings is being produced by tire manufacturers as part of the automotive industry's gradual conversion to the metric system. In the example here, "P stands for passenger; "215" is the width of the tire cross section in millimeters; "75" is the ratio of height to width; "R" means radial and "15" is the diameter of the rim in inches.

Load and inflation figures are given in both metric and conventional terms on the new "P-series" tires. The other sidewall markings remain the same. These include the Department of Transportation tire identification number and the type of cord in various plies.

Tire gauges will also be calibrated metrically. You will have to learn how to convert pounds per square inch (PSI) into kilo Pascals (kPa):

To convert PSI to kilo Pascals, multiply PSI by 6.895. (If you don't have a calculator handy, multiply by 7 and round off.)

17 lbs × 6.895 = 117.215 kPa

There is one catch: kilo Pascals can only be expressed in steps of 20, so you must round 117.215 off to 120 kPa.

Load factors will be expressed in kilograms instead of pounds.

To convert pounds to kilograms, divide pounds by 2.2.

695 lbs ÷ 2.2 = 315.90 kg, rounded off to nearest whole number = 316 kg.

Multiply load in kilograms by 2.2 to arrive at load in pounds.

Profile: The aspect ratio or profile of a tire is especially important because of the trend toward lower, wider tires, or "low-profile" tires, as they are called. There are several good reasons for this change in tire design. Essentially, a slightly lower, wider tire lowers the car's center of gravity and puts more rubber on the road for safer, surer handling under nearly all conditions. The aspect ratio is what indicates the tire profile – the lower the aspect ratio, the wider the tire. For instance, a 70-series tire is wider than a 78-series. Tires are made in the super-wide 60- and 50-profile series. However, 70 is generally the lowest profile size suited to "normal" driving.

When you're ready to replace tires, you may want to consider going to lower-profile tires. In most cases this will improve your car's handling and is well worth the additional cost. However, before replacing standard-size tires, check your owner's manual or with a reputable tire dealer for the recommended replacement size on your car. In some cases, a wider-than-standard tire is not recommended. Also, you should not mix tire sizes or profiles at any time.

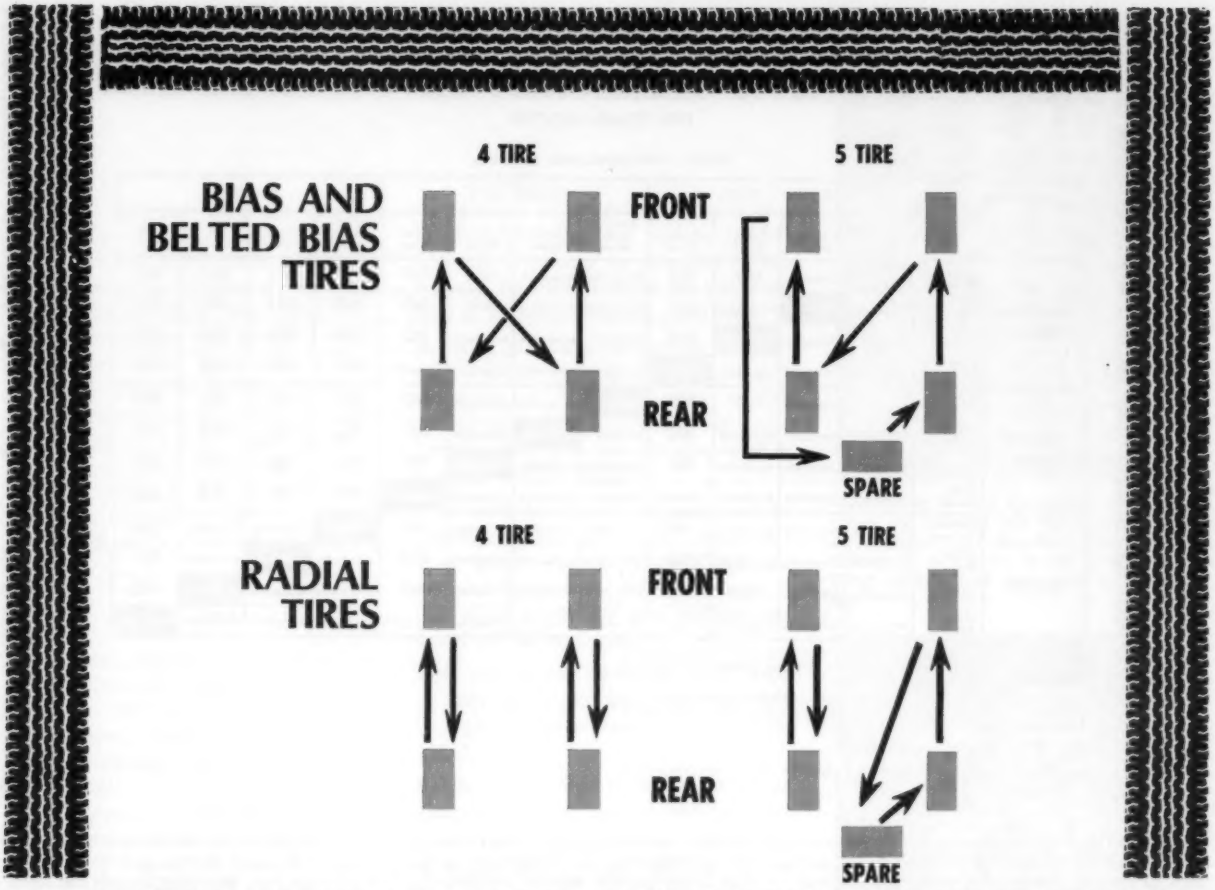
Considerations: There are a couple of important considerations when equipping a car with radials. Although radials are the best performing tire going, they may not be as well suited to certain types of heavy use as a belted tire.

Radials also should not be installed on a car with a worn or damaged suspension system, and they should always be used in a complete set. For best all-round safety and handling, it's recommended that tire types not be mixed on a vehicle at any time. This is especially true with radials because of their radically different handling characteristics – radials should never be used with any other tire type. Manufacturers now warn against mixing any tires – especially radials – of different sizes, profiles, constructions, and tread design at any time.

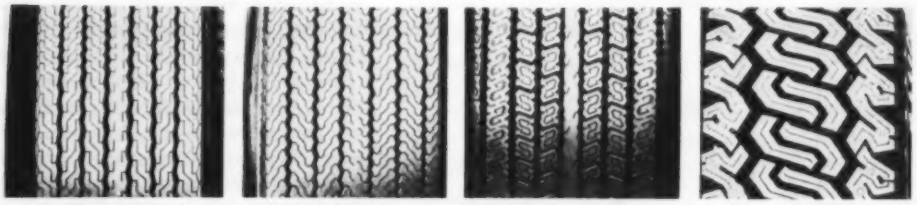
Rotation: Another radial question which was resolved a couple of years ago is that of rotation. Following extensive controversy and resulting study, a new plan of rotation for bias and belted tires, and a separate rotation pattern for radials was adopted by the tire industry. Most manufacturers are now recommending rotation of conventional and belted tires every 6 to 8 thousand miles following the pattern shown in the illustration to maximize tire mileage.

The manufacturers' recommendations for rotation of radials varies, however. Some companies specify regular rotation, while others recommend rotation only if uneven wear develops. Your best bet is to check with your dealer before rotating any radials. Also, the rotation pattern for radials must be used to prevent serious tire damage.

Inflation: Maintaining proper tire pressure is the most important factor in maximizing tire life as well as gas mileage. However, many people don't realize that there isn't any one correct inflation pressure. The pressure recommendations given in the owner's manual are for normal driving conditions – this excludes sustained highway speeds or extra weight in the vehicle. Studies have also shown that the manufacturers' recommended inflation levels may be a bit low in many cases. An improvement in handling and tread mileage can usually be achieved by inflating the tires from 2 to 4 pounds over the normal recommendations –



Tire rotation drill. Here are the patterns of auto tire rotation recommended by the Tire Industry Safety Council for safe, even wear and long mileage. Tires should be rotated every 6,000 to 8,000 miles, or sooner if irregular wear begins to develop.



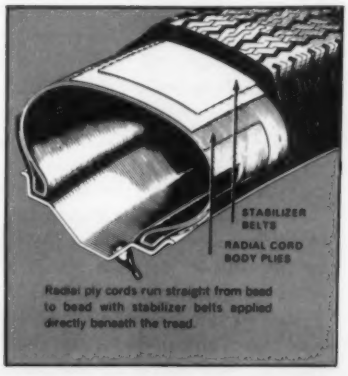
Bias-Ply | Bias-Belted | Radial Ply | Winter

A quickie guide to treads. New all-season radials have hybrid tread to combine many advantages of each type of tire. (See special all-season tire section.)

especially with radials. You should check with your tire dealer for the *tire* manufacturers' recommended inflation levels for your car—these may differ from the carmaker's specs. Also, you can experiment to find the best inflation levels for your car's tires, as long as you don't exceed the tire's maximum inflation level (shown on the sidewall) or go under the minimum recommended by the car manufacturer.

Inflating the tires about 4 pounds over the regular pressure for sustained high-speed driving, as recommended in your owner's manual, is also essential for maximizing tire mileage. This allows the tire to run cooler, decreasing wear and the chance of tire failure. However, be sure not to exceed the maximum inflation level.

Load-overload: Adjusting tire inflation levels for carrying loads is also an important but overlooked factor in good tire mileage and safety. Most people know that driving with underinflated tires causes excess tread wear and dangerous handling characteristics, as well as making the tires prone to failure. But most people don't stop to think that overloading their car's tires has ex-


STABILIZER BELTS
RADIAL CORD BODY PLIES
Radial ply cords run straight from bead to bead with stabilizer belts applied directly beneath the tread.

continued

TIRE COMBINATIONS

FRONT TIRES (Read Down for Rears)

Construction		DIAGONAL (BIAS)				BELTED BIAS				RADIAL			
		Numeric & 80 Series	78/75 Series	70 Series	60/50 Series	Numeric & 80 Series	78/75 Series	70 Series	60/50 Series	Numeric & 80 Series	78/75 Series	70 Series	60/50 Series
DIAGONAL (BIAS)	Numeric & 80 Series	Preferred	Acceptable	NO	NO	Acceptable	Acceptable	NO	NO	NO	NO	NO	NO
	78/75 Series	Acceptable	Preferred	Acceptable	NO	Acceptable	Acceptable	NO	NO	NO	NO	NO	NO
	70 Series	Acceptable	Acceptable	Preferred	NO	Acceptable	Acceptable	Acceptable	NO	NO	NO	NO	NO
	60/50 Series	Acceptable	Acceptable	Acceptable	Preferred	Acceptable	Acceptable	Acceptable	Acceptable	NO	NO	NO	NO
BELTED BIAS	Numeric & 80 Series	Acceptable	Acceptable	NO	NO	Preferred	Acceptable	Acceptable	NO	NO	NO	NO	NO
	78/75 Series	Acceptable	Acceptable	Acceptable	NO	Acceptable	Preferred	Acceptable	NO	NO	NO	NO	NO
	70 Series	Acceptable	Acceptable	Acceptable	NO	Acceptable	Acceptable	Preferred	NO	NO	NO	NO	NO
	60/50 Series	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Preferred	NO	NO	NO	NO
RADIAL	Numeric & 80 Series	Acceptable	Acceptable	Acceptable	NO	Acceptable	Acceptable	Acceptable	NO	Preferred	Acceptable	Acceptable	NO
	78/75 Series	Acceptable	Acceptable	Acceptable	NO	Acceptable	Acceptable	Acceptable	NO	Acceptable	Preferred	Acceptable	NO
	70 Series	Acceptable	Acceptable	Acceptable	NO	Acceptable	Acceptable	Acceptable	NO	Acceptable	Acceptable	Preferred	NO
	60/50 Series	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Preferred

Preferred — Preferred applications. For best all-around car handling performance, tires of the same size and construction should be used on all wheel positions.

Acceptable — Acceptable, but not preferred applications. Consult your car owner's manual and do not apply if vehicle manufacturer recommends against this application.

NO — NOT RECOMMENDED

*Courtesy of Rubber Manufacturers Association, Washington, D.C. 20006

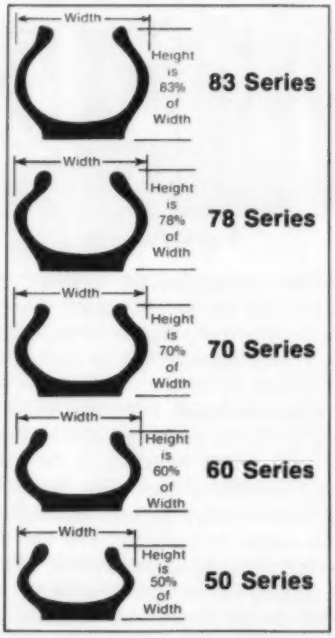
In the past, the tire industry generally has recommended against mixing of tire types, profiles, and sizes on the same vehicle. However, because of the completion of some recent studies that indicated that gross mismatch of tires causes even more serious problems than previously thought, the industry is coming out with an even firmer position against mismatching. The industry now recommends that car owners stick with the equipment originally specified by the manufacturer. This chart shows the only mixes considered acceptable at this time.

actly the same effect as having underinflated tires.

To keep them from overloading your vehicle's tires, first check the tire's load range and load-carrying capacity in your owner's manual or on the tire's sidewall. Nearly all passenger car tires are standard load, which means they have a maximum inflation of 32 psi. The load capacity varies according to the tire's size, however.

To determine a vehicle's total carrying capacity, simply multiply by four the load capacity shown on the tire's sidewall. For instance, an F78-14 tire has a carrying capacity of 1500 @ 32 psi. This means the vehicle's total carrying capacity is 6000 pounds (4×1500) when the tires are at their maximum inflation. The maximum weight and/or inflation levels should never be exceeded on any vehicle.

In many instances, however, you will have



Tire aspect ratio is a number denoting the ratio of a tire's width to its height. The lower the number, the wider the tire.

to compute the correct inflation pressure for carrying the specific load. To do this, simply add the vehicle's weight (shown in your owner's manual) to the weight being carried, including the passenger weight. Then check the total weight on the inflation chart to determine the correct inflation levels for your car's tires to safely accommodate the load. A tire dealer can also give you the correct tire pressures for a specified load in your vehicle. Finally, it's important to distribute any additional weight as evenly as possible in the vehicle.

Inspections: Along with maintaining correct inflation pressures, regular tire inspections are an essential part of tire maintenance. Tires should be replaced, and *must* be in many states, when the tread wear indicators (smooth bars across the tread) are showing, or when there is less than 1/16-inch of tread in any two adjacent grooves.

You should check regularly for fabric breaks, cuts, or any other tire damage.

Also, it's important to be alert for unusual wear caused by misalignment of the front end, out-of-balance wheels, weak shocks, or improperly inflated tires. Many tire shops now offer free, regular inspection and rotation when you buy new tires. Even if your shop offers this valuable service, it's still in your best interest to get in the habit of checking your tires' inflation pressure and general condition at least every two weeks. The accompanying list of tire tips should help you get at least a warranty's worth of safe, happy tire miles.

TIRE TIPS

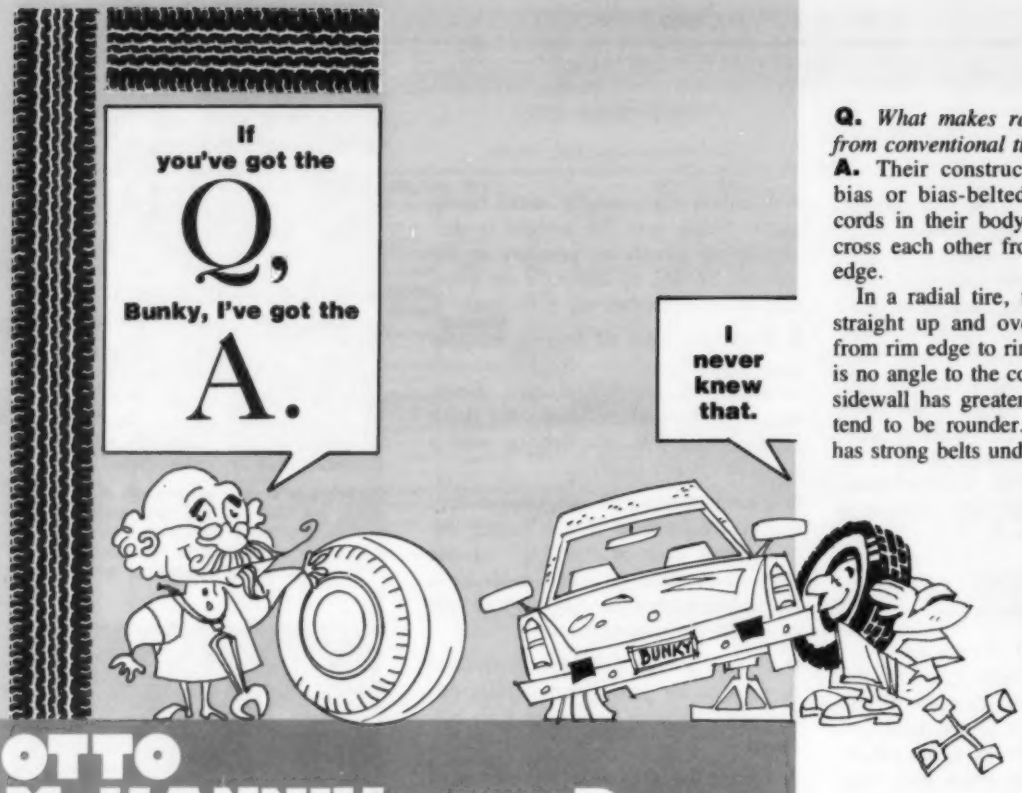
- New tires should always be given a proper break-in – limit speed for the first 50 to 100 miles. This allows the tire to slowly adjust to the heat and stress of driving. Breaking-in radials is especially critical since they may exhibit inferior traction until their special rubber compounds adjust to heat. Also, many radial tire makers recommend that balancing not be done until the break-in period is over, so that the new tires can take their permanent "set."
- Buy a good tire pressure gauge and use it regularly. Service station gauges may be way off.
- Check inflation with the tires cold – after they have been sitting at least 3 hours – not warm or hot after driving. The recommended inflation is based on a cold tire. Hot tires build up an extra 4 to 8 pounds of pressure.
- For steady, high-speed driving add 4 to 5 psi to the recommended air pressure. But *never* inflate above the tire's maximum pressure, usually 32 psi (cold reading).
- If one tire continues to need air, it may have a leak, bent rim, cracked valve stem or a faulty valve core. Refill it to the right pressure, but check it again after a few hours.
- When you check tire pressure, also check the spare. Nothing – not even running out of gas – is as foolish as a $50 tow charge because your spare is flat.
- Vacation trips usually mean heavy loads. Make sure the weight is distributed as evenly as possible in the vehicle. Be sure to adjust the tire pressure to accommodate the extra load.
- Form the habit of looking at your tires – tread surface, shoulders, and sidewalls for inflation. Radials always appear to be underinflated – but don't let that fool you into driving with a tire that's really under.
- Check front-end alignment frequently, especially if you notice uneven tread wear or "pulling" to one side while driving. Back roads or a few solid bumps on any surface can throw off the alignment.
- If you notice abnormal tread wear or seem to be getting a bad ride, this is a good time to have your tires balanced.
- Check the tires regularly for wear and remove any debris such as embedded glass or stones.
- When you buy new tires, have the old valve stems replaced. Valve stems can crack, become brittle, and wear out. Money spent for a new valve stem is a very good investment. Metal stems are probably the best bet.
- Driving on snow tires for any prolonged period in warm weather is poor economy. Abnormally high heat buildup in these thicker tires can wear down the tread faster than in regular tires. It may also cause sudden failure.
- Switching to tires with a larger circumference, such as snow tires, may cause you to get a false speedometer reading (on the low side). A car with larger tires travels farther with each revolution of the wheels. If your speedometer indicates you are doing 55 and you're still passing everything on the road, check it out . . . before the police check it out for you.
- Remember that wheels and tires have to be balanced occasionally. If a wheel doesn't roll true it can cause uneven tread wear patterns and erratic, unsafe steering. If you feel any shimmy or telltale vibrations, get the balance checked.

continued

Goodyear's new all-season steel-belted radial, the Tiempo, has eliminated 75 types and sizes of snow tires from their inventory. Center rib allows tire to run quietly, something conventional snow tires aren't noted for.

All-season radials have a very aggressive tread when compared to other passenger car tires. Large siping (tread) allows surface water to run off easily, helps prevent hydroplaning.

New symbols designate tire as all-season capable. Even though many states accept all-season tires in place of snow tires, chains may still be required in some areas.



OTTO McKANNIK, mmD

motor mender deluxe

PRESENTS A

Special RADIAL TIRE Section

Q. *What makes radial tires different from conventional tires?*

A. Their construction. Conventional bias or bias-belted tires have fabric cords in their body plies which criss-cross each other from tire edge to tire edge.

In a radial tire, the body cord runs straight up and over in hoop fashion from rim edge to rim edge. Since there is no angle to the cord fabric, the tire's sidewall has greater flex and the sides tend to be rounder. A radial tire also has strong belts under the tread.

Q. *What are the advantages of radial tires?*

A. Basically, there are three. Radials have greater mileage potential than conventional tires. Because a radial has strong belts and a flexible sidewall, the tread rides firmly on the road surface. Tread squirm can rob tires of potential mileage; radials help eliminate this problem.

Drivers also notice improved handling characteristics with radials because of the tires' sharp steering response.

Another advantage of the radial tire is the riding smoothness on the highway. (Some older cars may ride a bit harsher with radials because their suspension was initially designed for conventional tires.)

An additional consideration from the safety standpoint would be the fact that steel-belted radials have more resistance to punctures in the tread area when compared to conventional tires.

Q. *How does the cost of radial tires compare to other types?*

A. Initially, the cost is higher because it is a more expensive tire to manufacture. There are more components, adding to labor costs. The materials used are more expensive, because they are designed to last longer. But the radial has a longer life-potential than conventional tires, and motorists should consider that fact along with improved handling characteristics and better ride when comparing costs.

continued

Q. *Do you really get fuel savings by using radials?*

A. Yes. It takes considerably less power to roll a radial tire. Because of the tires' flexible sidewall construction, squirm and hysteresis* are reduced, thereby decreasing rolling resistance. A general rule of thumb for gasoline savings is from five to seven percent, assuming alignment and tire pressures are spot on.

Q. *Do I still need winter tires?*

A. Yes. Although the sidewall and tread flexibility of radials allows them to "clean out" their treads better than conventional tires, there is still no satisfactory substitute for snow tires if you want to have the utmost in handling and stopping power on ice or snow. Of course, we all know that you can't mix radial and conventional tires, so be sure to buy identical tire types all around.

Q. *Do inflation pressures for radials differ from conventional recommendations?*

A. No. Maintain air pressure in radials at levels suggested by the tires' manufacturer for the weight of your particular car. Because of the radials' unique sidewall design, it's almost impossible to judge proper inflation pressure visually. Rely on tire gauges for exact pressure readings.

Q. *When is a steel-belted radial tire not a steel-belted radial tire?*

A. When the steel belt is made of steel mesh rather than individual steel wires. If you have a cheap set of steel-belted radials and they don't show you the handling improvement you thought they would, read on . . .

The important features of a top-quality radial are the method of molding and the use of steel wire rather than mesh. The two methods of molding are "clamshell" and "segmented." DRIVER talked to a tire engineer at Firestone and he explained the difference:

"The clamshell method is the conventional method of molding tires, and it is done by expanding the tire in a fixed mold. In the segmented method, the mold is brought in several pieces to meet the tire. The segmented method provides much greater accuracy but, as with most good things, it's more expensive.

"Most quality radials use the segmented method of construction, along with steel wire instead of mesh. There are several classes of radials, so let me explain them.

"Class one is defined as a textile radial tire where the sidewalls and reinforced belts are of a nonmetallic material such as rayon or polyester. They are molded in the same fashion as a conventional tire, taking advantage of the fact that the fabric will pantograph (make a parallel, duplicate movement), allowing the tire to be expanded to a fixed mold. The mold for this elementary form of radial construction is called watch case, two-piece, or clamshell in the industry.

"Class two contains all of the class one's production procedures but the addition of a strip of wire mesh before the tread application acts as a restraining device. In effect, this gives the manufacturer the excuse to label the finished product as a steel-belted radial. It should probably be called a 'steel-reinforced textile radial.'

"Class three is defined as a steel-belted radial having two belts of wire mesh manufactured in a two-piece mold. A high percentage of factory 'seconds' is a result of making a two-ply steel radial in a two-piece mold. Problems encountered are ecliptic belts (causing steering wheel oscillations), balancing difficulties, amplification of road resonance, and premature wear at certain points on the tread.

"Class four refers to 'segmented' molds that travel in pieces to meet the tire carcass. With this method, the chance for error is almost zero, and an out-of-round tire is almost unheard of.

"You can tell a two-piece molded tire by the thin mold line or ridge that appears along the radius of the tire, usually in the center of the tread.

"Segmented tires can be identified by segmented molding marks going diagonally from the tread section to the bead section. There will usually be five or six of these equally spaced lines on a tire.

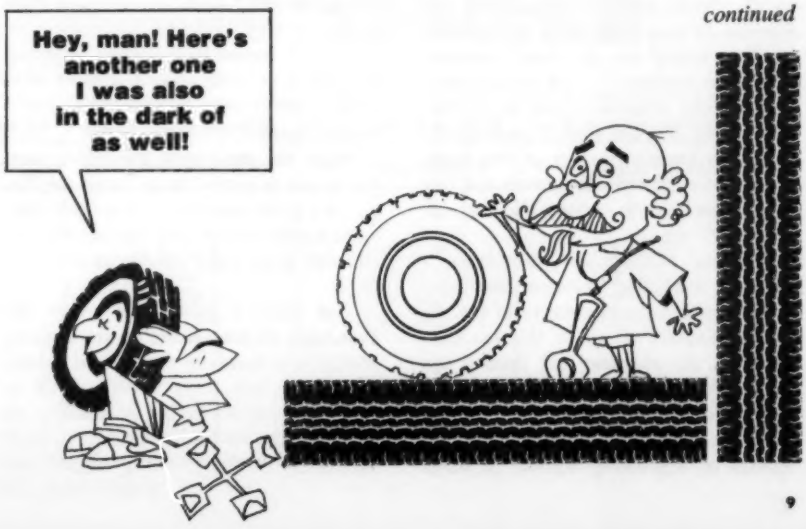
"Also, the segmented method allows a larger area or width of steel under the tread. Some low quality steel radials have belts that are only 2.75 inches wide! That's not much protection."

Q. *What about these rumors of radials failing at high speeds?*

A. Some of them are true, but let us qualify that answer. There is always someone who will drive on a tire at a greater speed than it is rated. Some police departments initially bought "high-speed" radials and experienced failures. It was found that most of these failures were in the 110 to 115 mph range, and that the tires were rated to only 80 mph!

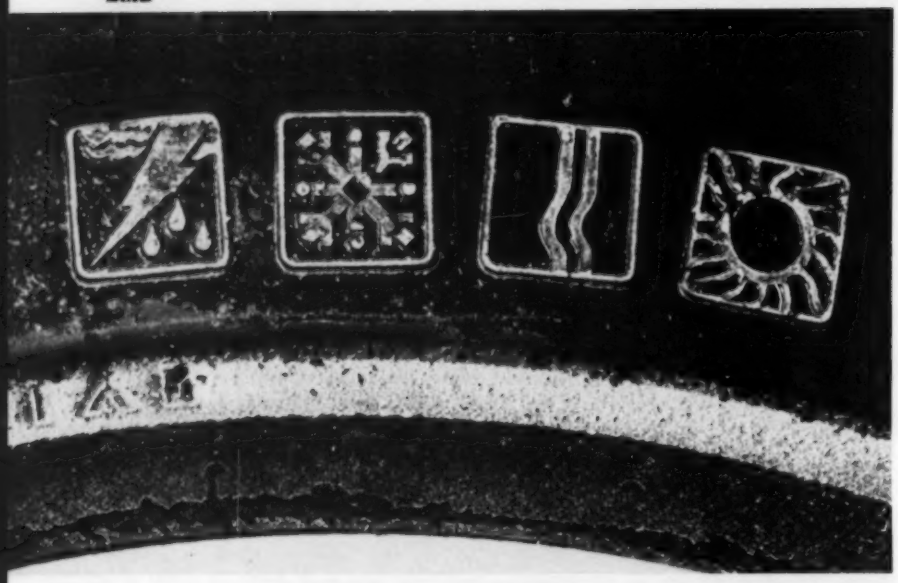
There are several tires available that are truly high-speed radials, and if you're considering racing or just want the added protection of a high-speed-rated tire, you might consider them.

continued



Hysteresis (his te re sis)–the dictionary defines hysteresis as "the time lag exhibited by a body in reacting to changes in forces which affect it." What it means to you, the tire buyer, is the amount of heat generated by the flexing of a tire's sidewalls. It takes less energy and generates less heat to flex a radial tire, so heat losses (hysteretic losses) are less.

Special Section



what about those "ALL-SEASON" RADIAL TIRES?

No tire manufacturer (that we know of) will deny that tire chains offer the best traction for driving in deep snow or on ice. But, at the same time, tire chains *can* be a hassle. Snow tires are good, but the expense of two extra tires and wheels can be a bother too. So, here's another avenue to explore . . . all-season tires.

Generally acknowledged to be the first on the market with a guaranteed, nationally-known product of this type, Goodyear's Tiempo all-season tire has won many friends among the "go-to-the-snow" set.

Howard Macdonald, Goodyear's auto tire marketing manager, attributes the increase in the popularity of the all-season radials to three things. One factor is the expense and limited use of studded snow tires. Studded tires do perform well in most snow and ice conditions but are being legislated against by a growing number of states (12 at last count) because of road damage.

Another reason is the mistaken belief of many drivers that they can rely on regular radials to get them over winter's snow and ice without difficulty.

A third reason is the added expense and hassle of using chains or snow tires when conditions sometimes don't require them.

What do they do? The all-season radial tire is just what its name implies . . . it's a tire that serves as a snow tire, a tire for driving in very wet conditions, and still gives good service in everyday duty.

The biggest thing that gives the Goodyear all-season tire its snow-going ability is a specially formulated rubber compound that stays "soft" down to −40 degrees F. Also, depending on tire size, the all-season tires have from 10,000 to 13,000 "biting edges" for traction. A center rib (called a "whisper rib") of traditional design allows the all-season tire to run as quietly as a regular radial, a claim snow tires can't make.

If you look at the photos of the all-season tire in this article, you'll see deep, wide shoulder grooves. This aggressive-looking tread pattern has two purposes. One, it improves traction on slippery surfaces, and two, it allows water to run off the tire surface easily. This helps eliminate hydroplaning and makes the tire give more traction on wet surfaces.

How good are they? Thirty-four states have now accepted various brands of all-season radial tires as suitable for snow. In fact, the California Highway Patrol has rated at least one brand as M-S (*M*ud and *S*now) tires. This means that when Californians are heading up to ski country and they see a sign that says "Only Vehicles Equipped with Chains or Snow Tires May Proceed Beyond This Point," they can just point out the M-S rating and drive away.

There is a disadvantage to the all-season tires. They wear slightly faster than regular radials because of the softer rubber compound. However, Goodyear claims that their wear-rate is 90% to 95% of regular radials. This fact, when coupled with the fact that all-season tire prices are less than that of top-of-the-line radial prices, may mean the cost difference is minimal.

The Bottom line: If the majority of your winter driving is done in deep snow or on icy surfaces, chains and snow tires are still the best way to go. But if you're a weekend skier, or your snow conditions are constant but light . . . if your area of the country gets a LOT of rain . . . or if you encounter snow or rain occasionally but do a lot of long-distance driving or heavy towing, then the steel-belted all-season radial may be the tire for you.

(We wish to thank Tom Miklosovic of Goodyear Tire & Rubber Co. for his assistance in the preparation of this article.)

Spark Plug
removal & installation

After the normal service life of a spark plug, one or more of the plugs in an engine may be a little difficult to loosen for removal. Allowing the engine ample cool-down time will facilitate plug removal. The use of a penetrating oil is also recommended if the plug appears to be dangerously tight or seized.

Avoid jerky hammering . . . apply steady pressure to the wrench until the plug loosens. Before removing the plug, put on your safety goggles and use compressed air to blow any dirt or other debris from the port area that might be present to prevent it from falling into the combustion chamber.

If the spark plug appears to be overly difficult to remove by hand, it may be due to carbon which has collected in the threaded area of the cylinder head. This condition is more common in older engines. The threads should be cleaned with a thread-chaser tool and the seat wiped clean to assure good seat contact before installing a new plug.

Before installing the new plug, check the electrode gap and, if necessary, set it to the specifications recommended by the engine manufacturer.

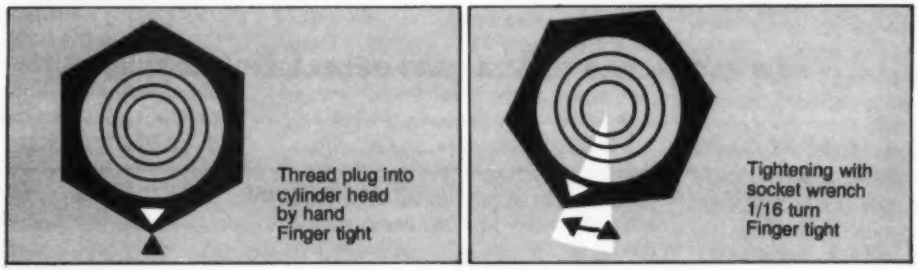
Install the new plug by hand until finger tight and complete the installation with a plug wrench. A gasket-type plug will require about one-quarter (¼) turn to effect a gas-tight seal. Tapered seat plugs do not use gaskets and require about one-sixteenth (1/16) turn.

Proper installation of the spark plug will facilitate easy removal during the next tune-up.

(Reprinted from Champion Service Corner *Magazine)*

GASKET TYPE PLUGS

TAPERED SEAT PLUGS



TORQUE RECOMMENDATIONS

SPARK PLUG THREAD SIZE	CAST IRON HEADS W/Torque Wrench	CAST IRON HEADS w/o Torque Wrench	ALUMINUM HEADS w/Torque Wrench	ALUMINUM HEADS w/o Torque Wrench
GASKET TYPE				
10mm	8-12 lb. ft.	1/4 Turn	8-12 lb. ft.	1/4 Turn
12mm	10-18 lb. ft.	1/4 Turn	10-18 lb. ft.	1/4 Turn
14mm	26-30 lb. ft.	1/4 to 3/8 Turn	18-22* lb. ft.	1/4 Turn
18mm	32-38 lb. ft.	1/4 Turn	28-34 lb. ft.	1/4 Turn
TAPERED SEAT				
14mm	7-15 lb. ft.	1/16 Turn (Snug)	7-15 lb. ft.	1/16 Turn (Snug)
18mm	15-20 lb. ft.	1/16 Turn (Snug)	15-20 lb. ft.	1/16 Turn (Snug)

*Mazda Rotary Engine requires only 8-13 lb. ft. (1/4 turn)

Loss Experience Identifies

Best & Worst '78 Models

Six of the 10 1978 model cars that have shown the worst collision coverage loss experience are subcompacts, and the other four are specialty models. Of the 10 cars with the best loss experience, half are compacts and the rest are intermediates.

These are among the findings in a Highway Loss Data Institute (HLDI) analysis of the collision loss experience of 1978 models during their first nine months of availability. HLDI gleaned the 10 best and worst lists from a field of 95 individual vehicle series of 18 makes. Of these, 12 makes are domestic and six are imports.

Leaders far below the average figure: The car with the worst record, the Chevrolet Corvette, had a relative average loss payment per insured vehicle year of 221, more than double the average (100) for all models combined. Two other cars – the Volkswagen Scirocco and the Toyota Celica – also had relative average loss payments per insured vehicle year that were at least twice the overall average.

By contrast, the two cars with the best record – the Buick Skylark four-door and the Mercury Zephyr station wagon – had relative average loss payments per insured vehicle year that were 50, or just one-half the average of all models.

Other findings of the HLDI study include:

- Five of the 10 cars with the worst experience are imported models.
- The five domestic models on the 10-worst list are all sports or specialty models.
- All of the cars on the 10-best list are domestic models, representing three manufacturers and seven different makes.
- Only one car on the 10-best list – the Chevrolet Nova – is a two-door model. The rest are either four-door models or station wagons.

HLDI uses the following definitions of vehicle size groups: Subcompact (SC) – cars with wheelbases less than or equal to 101 inches; Compact (C) – cars with wheelbases greater than 101 inches and less than or equal to 111 inches; Intermediate (I) – cars with wheelbases greater than 111 inches and less than or equal to 120 inches; and Full-Size (FS) – cars with wheelbases greater than 120 inches. Each vehicle size group is further divided into four subgroups: regular two-door, regular four-door, station wagon, and sports or specialty models.

The 10-best and 10-worst rankings were derived solely from the loss experience under collision coverages, which insure auto owners against damage to their own cars by collision.

HOW HLDI RANKS THE '78 CARS IN COLLISION LOSSES

10 BEST CARS				10 WORST CARS			
Buick Skylark	4-Door	C	50	Chevrolet Corvette	Sports	SC	221
Mercury Zephyr	S.W.	C		Volkswagen Scirocco	2-Door	SC	216
Chevrolet Nova	4-Door	C	54	Toyota Celica	2-Door	SC	200
Oldsmobile 98	4-Door	I		Datsun 200 SX	2-Door	SC	175
Chevrolet Nova	2-Door	C		Datsun 280Z	Sports	SC	171
Chevrolet Caprice	4-Door	I	55	Pontiac Firebird	Spec.	C	170
Dodge Aspen	S.W.	I		Lincoln Mark V	Spec.	FS	145
Pontiac Phoenix	4-Door	C		Toyota Corolla	*	SC	137
Chevrolet Caprice	S.W.	I	57	Dodge Charger	Spec.	I	134
Plymouth Volare	S.W.	I	60	Chevrolet Camaro	Spec.	C	133

*Body style cannot be determined from the Vehicle Identification Number.

Mopeds... will the regulations TIGHTEN UP?

Right now there are probably half a million mopeds on the U.S. roads. That's ten times as many as only three years ago. The Moped Association of America sees the moped as "fully ubiquitous by the early mid-eighties, when as many as five million mopeds could be operational throughout the United States." In other words, the little machines will be everywhere.

This growth in number, plus the total lack of any consistency in the states' dealings with mopeds, has caused the National Highway Traffic Safety Administration (NHTSA) to propose a series of recommended regulations to the states for adoption. These recommendations were published in the *Federal Register* last October and will become effective next November, after public comments.

These recommendations are *not* proposed highway safety standards. If NHTSA decides to make formal rules, they will announce that fact beforehand. At present it is the insurance industry that is urging NHTSA to resolve some of the questions produced by the mopeds. But there is little doubt that if the states don't do something about establishing rules, more federal pressure will be brought to bear.

NHTSA defines a moped as "a motor-driven cycle with mechanical linkage to permit muscular propulsion and a power source that provides a maximum of two brake horsepower."

PROPOSALS

■ The first proposal is that mopeds be registered and licensed so that they are clearly distinguished from bicycles and motorcycles. In accident reports, data on moped crashes should be separated from data concerning bicycles and motorcycles. Currently, 24 states define mopeds as bicycles, 14 as simply mopeds, and a couple refer to them as motorcycles. Twelve states have no moped legislation of any kind and so don't define the machines in any way.

■ NHTSA further proposes that moped operators have the same insurance requirements and financial liability as drivers of other motor vehicles. Only four states now require that moped operators carry insurance, and only 14 have laws which make moped operators financially liable.

■ Next, the Agency says that moped operators should be required to hold operators' licenses and *meet the same age and testing requirements* as operators of other motor vehicles. Although this will come as a surprise to many, NHTSA actually first took this approach four years ago when it said, "The skill needed to coordinate the throttle and the front and rear brakes of a moped are considerably more complex than those needed to operate a bicycle."

(Incidentally, DRIVER is sometimes asked why a moped isn't just a bicycle with a motor. The answers appear to be that the government says so. The Department of Transportation's Motor Vehicle Safety Standards (September 1974) say that mopeds have to meet the same requirements as motorcycles in certain areas. Hence, the front-wheel brake is placed on the right handlebar, along with the throttle control. When stopping a moped or motorcycle, the operator's right hand would be moving the throttle control to lower speed while he can be braking the rear wheel with the left hand. If you have wondered about the location of brake controls on a moped, now you know the reason. The government says so.)

■ A handbook on moped legal requirements and safe-driving practices should be prepared. Motorcycle safety education programs should include information on moped operation, and this information should also be incorporated into high school and adult driver education courses.

■ Passengers should be prohibited on mopeds unless the vehicles are specifically designed to carry passengers. All moped drivers would be encouraged to make themselves highly visible to other traffic, and they *would be required to wear safety helmets*. (Georgia is the only state which now requires helmets; two other states have restricted helmet laws. According to NHTSA, the pattern of moped crashes is much more similar to that of motorcycles than to that of bicycles.)

■ NHTSA recommends that mopeds not be permitted on high-speed, limited-access highways. They could be operated on on-road bicycle lanes or paths in some cases, but the states should make every attempt to provide low-speed alternate routes for mopeds. NHTSA says, however, that it may not be practical to provide direct access to all the places a moped rider may wish to go.

What next? If these proposals eventually become laws, mopeds will certainly not be useful transportation to people too young to drive cars. NHTSA seems to believe that the very young do not ride mopeds anyway. In granting an equipment exemption to a manufacturer recently, the Agency said: "Most jurisdictions in the United States require the operator of such a vehicle to be not less than 15 or 16 years old. This assures NHTSA that the mopeds are unlikely to be used by children on city streets."

A look at the states indicates that NHTSA's confidence may be unfounded. Twelve states have no moped laws. Of the remaining 38 states and the District of Columbia, 18 permit persons 15 and younger to drive mopeds. South Carolina allows 12-year-olds to drive them, and New Mexico sets the minimum age at 13.

Sixteen of the states with specific moped laws have no registration requirements, and four do not require driver's licenses to drive mopeds.

The other item of real interest in these proposals is that the states require operators to wear helmets. If the states begin to move back toward compulsory helmet laws for motorcycles, moped drivers may well find themselves under the same law. In any event, if you like to think of your moped as some kind of bicycle, it looks like you can forget it. Your moped is in a little category all its own but, if NHTSA has its way, the laws will look at it a lot more as a motorcycle than as a bicycle.

(Data from Insurance Institute for Highway Safety and Moped Association of America.)

the 10 Commandments of AUTO REPAIR

Know someone who lives a charmed life when it comes to automobiles?

No service problems? No gripes when their car or truck goes to a dealer for service?

Is that someone just lucky? Not really, according to Al Veit, manager of customer relations for Chrysler Corporation. He or she simply knows how to make the vehicle servicing system work for, instead of against, them.

With Chrysler's ten commandments of auto repair, you can be like that someone, says Veit. His suggestions are:

1. Thou Shalt PRACTICE PREVENTIVE MAINTENANCE.

Chrysler and other vehicle manufacturers establish a schedule of routine servicing procedures for every model sold. This maintenance is designed to prevent expensive mechanical malfunctions by servicing certain vehicle systems and components at specified intervals. Read your owner's manual to learn about your car. Follow these suggested preventive procedures: the odds against having car trouble will rise sharply in your favor.

2. Thou Shalt GIVE THOUGHT TO THE APPOINTMENT TIME.

Knowing when to take your car in for service is as important as knowing where. Avoid Mondays like the plague. Not only is everybody and his sister jamming your dealer's service drive following a weekend, you have to compete for time with repair jobs left over from the previous week.

Fridays are not much better. Mechanics are trying to finish all those cars promised "for the weekend." Save yourself some grief and target Tuesday, Wednesday or Thursday as appointment day.

3. Thou Shalt PREPARE FOR THE APPOINTMENT.

If you're having warranty work done on a new car, be sure to have the right papers with you. Take your warranty folder. The writeup man needs your Vehicle Identification Number (VIN) for his processing of your work. Keep a service log on your car and bring it with you. This gives the service people your car's maintenance history and can often provide clues to possible causes of your current problem.

4. Thou Shalt PREPARE A LIST.

Make a written list of your car's problems or the specific work you want done. Your car is only one of hundreds a busy service write-up professional sees in a week, and it's impossible for him to remember each detail of every car owner conversation. Help him (and yourself) with a written list, and don't keep secrets. If you've had an accident or something done to your car that's not on your maintenance log, let him know.

5. Thou Shalt BE SPECIFIC IN THY REQUESTS.

"I'm going on a trip . . . do what needs to be done." This is an open invitation to misunderstanding and contested service bills. Write down what *you* think needs to be done, then ask for the service writer's suggestions. When you leave the car, leave with it a mutually agreed upon list of items to be serviced, and a mutually agreed upon cost estimate.

6. Thou Shalt BE REASONABLE IN THY REQUESTS.

Don't leave a list of 20 items needing attention and then expect to have your car back by five o'clock. Larger repair facilities have specialists, and your car may need the attentions of several service technicians. If you list multiple items, and you must have your car at day's end, discuss the situation with the service writer and list the items in order of priority. Expect to make a second appointment for work not completed during the first.

7. Thou Shalt LEAVE NO LIFE FORMS FOR SERVICE.

Ridiculous as it may seem, people will leave small animals in their car, saying to the repairman: "Just ignore him, he won't bite." They'll also park their children in the showroom. Car dealers sell and service automobiles: they do not provide babysitting services.

8. Thou Shalt NOT WATCH.

Don't be offended when you're told you can't watch the work being done. Insurance requirements bar the admission of customers to vehicle repair areas. Plus, the service technician is like most of us . . . he doesn't like working with someone looking over his shoulder. With the complexity of today's automobiles, any distraction during a servicing procedure is one too many.

9. Thou Shalt MAKE COMPLAINTS PROMPTLY.

Check out the service or repair job as soon after picking up your car as possible, and notify the service manager of any dissatisfaction then . . . not six weeks later. If circumstances prevent your returning for immediate corrective work, make an appointment for as early a date as possible.

Veit's last commandment is:

10. Thou Shalt CHERISH THY SERVICE PROFESSIONAL.

A good mechanic, and a competent writeup man, deserve your continuing business. If you've received a good job on a previous maintenance or service trip, return to that shop for more service. Like your doctor, dentist, or barber, those professionals will get to know you . . . and your requirements. You'll benefit from the longtime relationship.

According to Veit, "People are people regardless of which side of the automotive service counter they're on. As an automotive service customer, you'll be surprised at how far a little bit of thought and preparation will take you."

Achtung!

Or "It's a long way to Friedrichshafen"

by 2d Lt VIRGIL KICKER and 2d Lt RONALD FUCHS
Vehicle Operations Officer — Asst Information Officer, 4th Tactical Fighter Wing

One-way medieval roads winding through the German countryside are quite common, and the personnel assigned to Seymour Johnson Air Force Base will now recognize them because of this "Einbahnstrasse" sign placed below its American counterpart.

Metric conversion from miles to kilometers lets Seymour drivers know how fast and how far they can go.

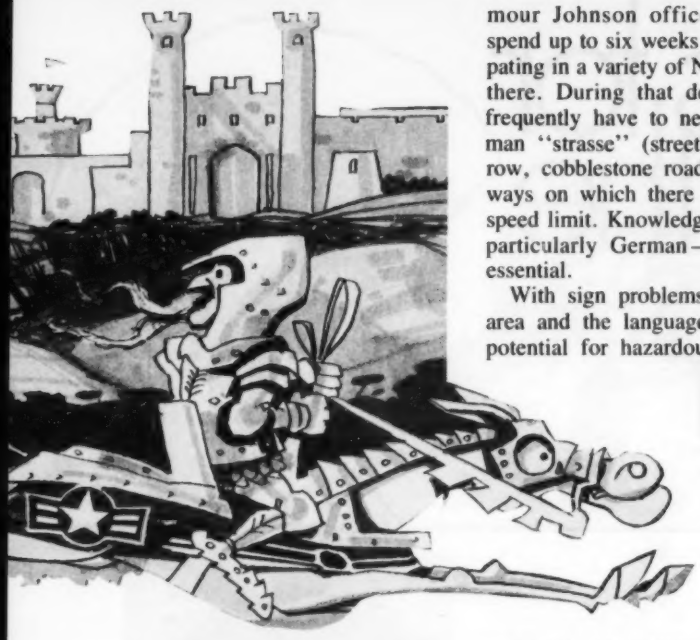
Green, yellow and red are as easily recognized in Germany as in the United States. The sign warns drivers of an upcoming stop light.

After many long months at basic training and specialist school, Airman Miller is excited about finally getting into the mainstream of life in the U.S. Air Force. His assignment, at an Air Force base in North Carolina, is the farthest he has ever been from his home in California, and it promises to be an adventure.

But as he drives on the base, looking for the unit he's been assigned to, he sees a sign that says "Einbahnstrasse." "Hey!" he thinks. "That's German! I'm not *that* far from home, am I?" He drives on, and spots other unfamiliar signs, posted below the traffic signs he's seen many times. The odd signs include a triangle with three colored balls, one red, one yellow and one green – this one just preceding a stoplight – and other signs with foreign words.

"What's going on here?" he asks himself, and the only answer he can reach is that the strange signs have something to do with an Air Force mission. In a way, his assumption is correct.

Miller's puzzlement is something nearly everyone assigned to Seymour Johnson AFB experiences at first. The reason is simple: the base is the home of the Air Force's only dual-based fighter squadrons. These squadrons are housed in the United States for administrative and training purposes, but are operationally committed to the European theater. Since these dual-



Some people will stop at nothing, but whether driving in Germany or America, safety demands you stop for these signs.

based units – the 335th and 336th Tactical Fighter Squadrons – may have to operate in that area of the world with very short notice, Seymour Johnson people are being educated on the peculiarities of European life. Driving conditions, traffic signs in particular, receive special emphasis.

In fact, the squadrons practice their airpower skills in Europe every year. Their "other base" in Europe is Ramstein Air Base in north central West Germany, and more than 800 Seymour Johnson officers and airmen spend up to six weeks each fall participating in a variety of NATO maneuvers there. During that deployment, they frequently have to negotiate the German "strasse" (streets), be they narrow, cobblestone roads or wide highways on which there is absolutely no speed limit. Knowledge of European – particularly German – traffic signs is essential.

With sign problems, the unfamiliar area and the language difference, the potential for hazardous driving is increased for the deployed airmen. Airman Miller will probably be required to drive while deployed, and his safety is a major concern of the Air Force. Therefore, Seymour Johnson has established an ongoing safety program which will reduce the potential driving hazards for people like Airman Miller.

Part of the program is the one Miller encountered when reporting aboard. Various international road signs are posted adjacent to their American counterparts, when counterparts exist. International road signs may seem confusing and difficult to understand compared to those used in the United States. However, after a closer look, it is clear that using a picture rather than a word approach is helpful to easier understanding and faster reaction in traffic.

Over 100 signs are used by the nearly 70 nations participating in the international road sign program. Wherever a traveller drives in Europe, he finds the road signs in each country are nearly identical to those of the country he just visited.

The signs at Seymour Johnson are built by the civil engineering squadron. The "Einbahnstrasse" sign that Miller encountered is placed below its counterpart, a one-way street sign. The three colored balls in a triangle has no counterpart at Seymour Johnson and means that a stop light is ahead. There are international road signs which depict such hazards as cattle, falling rocks or cars falling into canals; and although none of these have much chance of being posted at Seymour Johnson, deploying personnel still receive instruction on their meaning.

The 86th Tactical Fighter Wing (the host unit at Ramstein) presents a multi-media orientation briefing for Ramstein, Germany, and the surrounding area to the Seymour Johnson personnel. Each unit's safety officer coordinates the dual base education. Classes are taught by the transportation squadron driver's school to key personnel who might drive in West Germany.

The Federal Republic of Germany has one of the highest accident rates in the world. The density of traffic rivals that of Los Angeles or Metropolitan New York City. The crowd is even bigger when the 335th and 336th deploy to Germany because of the late tourist season. In the training class, drivers are taught that Germans have a precise knowledge of their right-of-way and insist on taking it. As a result, "failure to yield right-of-way" is a frequent cause of accidents in which American drivers are involved.

The class also teaches Air Force personnel how to drive on European expressways. Unlike our posted speed limits on our freeways, there generally are no speed limits on European roads. The class emphasizes the necessity of driving at a safe speed like you'd find on the New Jersey turnpike!

The quaint cobblestone streets that were a familiar sight to the soldiers of Frederick the Great are still in use today and are perilous to drivers who may not appreciate how slippery and dangerous they can be. The winding and narrow roads in German villages along with the breathtaking scenery of the countryside all detract from an American driver's concentration.

Should the President of the United States so direct, the 335th and 336th Tactical Fighter Squadrons could find themselves in Germany within a matter of hours to perform their assigned NATO mission. With the use of international road signs at Seymour Johnson, and a comprehensive class on driving conditions in Germany, people wearing Air Force blue have a better chance of completing a safe mission.

So far, the one unusual hitch in the program involves the Stop sign. A German road sign with "halt" written on it has been placed below our traditional octagonal Stop sign, but the eight-sided Stop sign is now being used as an international road sign. That may make our airman feel a bit closer to home.

California Highway Patrol Officer John Savage gives us some

tips for the NEWER driver

by RHONDA WILEY

Just north of the city limits of San Bernardino, California, a California Highway Patrolman named John Savage turns on the red lights of his patrol car and motions the driver in front of him to pull over. Officer Savage walks up to the driver's side window of the "stopee" and politely asks the driver to exit the vehicle and come with him to the shoulder of the highway. There, Officer Savage asks the driver to remove her driver's license from her wallet. At the same time, he removes a pen from his pocket and begins to write in his leather-covered ticket book. The young lady driver appears ready to break into tears as the officer takes her license and begins to copy the information.

Officer Savage has been at this for 14 years, so he is polite but a bit formal and reserved as he explains why the driver was stopped, the amount by which she exceeded the speed limit, and the steps she must now take as far as the ticket is concerned.

He again cautions the young lady about speeding. She gets back in her car and is away quickly. Officer Savage returns to the patrol car shaking his head slightly. "That's 12," he mutters.

The number "12" that Officer Savage is shaking his head about is the number of people under 18 years of age that he has stopped this day. Unfortunately, 12 stops for drivers under 18 is about average for a shift. Averaged out, 10 of those stops are for speeding, the rest split between open (alcohol) container violations, displays of speed (also known as "contests of speed" or street racing), following too close, bad lane changes, failure to yield, and running stop lights.

Why do newer drivers get so many tickets? I asked Officer Savage that question, and at the same time, requested that he give me some tips to pass along to newer drivers. Here's what he told me:

Speeding = tickets: The primary thing that we, as law enforcement personnel, notice about newer drivers is that they're always in a hurry. But before I go further on that subject, let me give you a fact of life . . . we *look* for young drivers. I'm not saying whether that's right or wrong, but the fact remains that if you're young we watch you more than we do older drivers. You might as well face it. You young drivers have got to pay a lot more attention to traffic laws than an older driver if you want to avoid tickets.

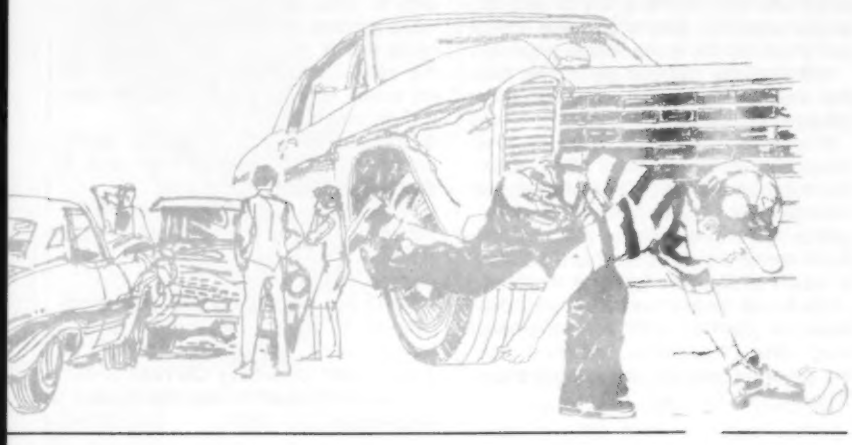
Getting back to the speeding problem, it seems that young people today are in an awful hurry, even when they're not driving. They've got a lot of things that they're interested in, but apparently a limited amount of time in which to do them.

Now, you may never have had a ticket for speeding, but how about one for following too close, or for failure to yield, or making a bad lane change, or running a light. All these tickets have excessive speed as their basic cause. You were in a hurry, you pushed it to beat the light. You were late, so you

About the author

Rhonda Wiley is a high school student who spent her summer working for DRIVER. She typed hundreds of envelopes to send you readers copies of "The Backyard Mechanic." She read proof, answered phones, and helped the photographer set up pictures. Just when we were getting used to all that assistance, it was time for her to go back to school.

Rhonda's final assignment was this interview with Officer John Savage of the California Highway Patrol. Because she's a brand new driver herself, she wanted to talk to John about the special problems of inexperienced drivers.



followed too close so that you'd be ready to pass. Both of these are speed-related.

When you get a little older, the car becomes something quite different. It's a form of transportation to get back and forth to work or to go to the grocery store to get food for the kids. But to you, now, the car is a place where you can get away from supervision, kick back, do what you want. It's independence, freedom, and liberty all rolled into one, and driving is still fun.

Right now, your attitude about driving isn't what it's going to be in a few years. Right now it doesn't bother you if you burn 2,000 miles off the rear tires when you leave a stop light, and you're probably not too concerned about brake lining life being shortened by many brake applications caused by going a little too fast for conditions.

So, if you combine an attitude of "No, I won't be late, I'll just go faster" with the ego-gratification of having people notice you when you light up the rear tires, you're gonna wind up with speeding tickets. That's if you're lucky . . . if you're not, you'll wind up with a broken car or a broken something else that's even more near and dear to you.

The best thing to do, if you want to avoid tickets, is to slow down. If you're going to be late to an appointment or a party or something, just use the phone and tell 'em you'll be a little late. Relax, drive within the speed limit, and get where you're going without tickets and without accidents.

Tips for the newer driver: Many newer drivers aren't even aware that in some states you can be busted for having alcoholic beverages in the car, even if the containers aren't opened, *if* you're under the age of 21. When you hit 21, then the "open container" laws take over. In other words, in some places you've got to be 21 to even carry alcoholic beverages in the car!

■ A lot of newer drivers modify their vehicle's exhaust system. They may *say* they're doing it to get better gas mileage or more power, but you and I both know that the real reason is *noise*. I'm the first one to admit that a really nice-sounding set of headers and glasspacks can get you off, but when it all comes down to is that in many states it's illegal to modify an exhaust system so that the noise is "amplified or increased." Yes, it *is* true that headers and low-restriction mufflers can help you get more usable power and therefore better mileage, but that car had better be as quiet as it was when it left the factory, or it's illegal. If you don't want tickets, remember that we watch for, and listen harder to, a car with a young driver in it.

■ We *all* make mistakes, and when you first learn to drive you'll make as many mistakes as anyone. But when you couple excessive speed with inexperience, you wind up being a driver that hits things. OK, like I said, we've all made mistakes, but what we're seeing now are hit-and-run accidents with young drivers involved. These aren't fatal accidents I'm talking about, or even ones that involve a lot of damage. It's the kind of accident where a new driver will hotshoe into a parking space and, not being familiar with his car or how to judge distances, drive right into the car parked opposite him.

A young person involved in this type of incident will panic . . . he can see the old man grounding him for six months or something like that, and so he's scared and takes off. That makes it hit-and-run. A little fender-bender will cause you some inconvenience, true, and the folks'll probably get a little huffy, but if you turn a simple bumper-thumper into a hit-and-run . . . well, you'll learn what BIG trouble is all about. Just stick around, exchange information, and get the whole thing over with . . . don't fool with a hit-and-run charge.

■ A good many newer drivers come to grief because they aren't aware of their environment. No, I don't mean they don't know enough to come out of the rain. . . . I mean their *automotive* environment! You're not yet in the habit of watching the cars around you; you don't check out intersections as well as you should; you don't think about kids, dogs, and bouncing balls in a crowded neighborhood. You're spending all your concentration on just *driving*. Turn here, stop here, turn again . . . stuff like that. Your brain hasn't got time to tell you "watch out, that turkey's gonna turn left in front of you." Heck, you're just tryin' to keep the car goin' in a straight line!

Don't allow your entire being to focus on just the act of driving. There are other things out there that need your attention, too. Spread your skills around and drive with your brain as well as your hands.

Rhonda's summary: I learned a lot of things working on DRIVER last summer. (I think I gained weight, too. Man, is this staff into food!) But what I learned riding with Officer Savage has made me a better, more aware driver. If you're a new driver like me, I hope you learned something too, from my very first magazine article.

Timely Topics

GM RECALL

General Motors is recalling 130,000 of its sporty subcompact models to install new parts to improve grease retention in the front wheel bearings. All are 1975 models.

Involved are 70,000 Chevrolet Monzas with V-8 engines and 30,000 Oldsmobile Starfires and 30,000 Buick Skyhawks with V-6s.

GM said grease may not be adequately retained in the front-wheel bearings under extended severe braking conditions over a period of time. Insufficient grease can cause wheel-bearing failure and damage to the spindle which could cause loss of vehicle control.

GM said it has received reports of three accidents and one minor injury due to this condition.

Parts to correct the problem will be available early in 1979 and letters will be sent at that time to all known owners of the cars involved.

CAR RECALL

The National Highway Traffic Safety Administration (NHTSA) has announced the voluntary recall by Subaru of America, Inc., of 23,000 1978 Brat passenger vehicles because of possible fuel-tank leaks. Subaru told NHTSA that blockage in the fuel evaporative-control system can produce abnormally high pressure, causing hairline cracks in the tanks. WHAT TO DO: Examine your fuel tanks for bulges or signs of leakage and get in touch with your dealer immediately if a problem exists. Owners will be notified by the company, and the problem, if any, will be corrected at no expense to the owners.

FOUR-WHEEL DRIVING ON ICE

Winter is here, so now is a good time to review the "do's" and "don'ts" in using a four-wheel-drive vehicle on ice, sleet and snow.

According to Marvin W. Stucky of American Motors, producers of Jeep vehicles, maintain a light touch on the steering wheel in packed or wet snow that's slick. Stay on the crown of the road and make only gradual changes in the throttle opening to avoid breaking traction. Don't do anything sudden or drastic.

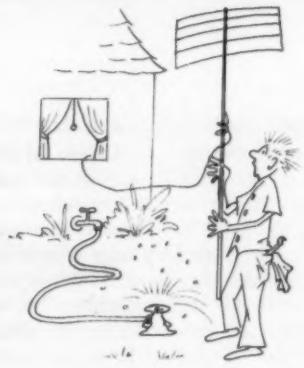
In dry, deep snow, use a lower gear (or low range if the vehicle is so equipped) and try to keep an even pace. Don't spin the wheels or go so slow that the vehicle will bog down.

On ice, do everything at a moderate pace—accelerating, braking and steering. If the road has a crown, stay on it. Steer with the fingertips. Try to stop on a level area or a downward slope. Don't jam down on the brake, pump it gently.

If the vehicle starts to slide, steer into the direction of the skid. Then make a gradual correction.

It is advisable to keep the gas tank full during winter months in case gasoline supplies are cut off by storm-related emergencies, and to take along emergency equipment such as a tow chain, flares and a shovel, as well as a blanket, to assist others who become stranded.

"Full-time four-wheel-drive provides superior traction and control under tough driving conditions, but good driving practices are still required on snow and ice," Stucky says.



OVER 100 DEATHS LINKED WITH CBs

According to the Consumer Product Safety Commission (CPSC), more than half of all electrocutions reported to it involve citizen's band radio or television antennas. Electrocutions usually occur when the antenna touches high-voltage power lines while being put up or taken down. In many of the cases, victims lost an arm or leg. More than 100 deaths a year are associated with CB base station antennas.

The CPSC offers the following suggestions to help reduce the chance of an accident:

- Get a professional to install or remove the antenna if you can.
- Avoid putting up antennas anywhere near power lines.
- Don't assume power lines are insulated. Most are not!
- Never work alone. Always have someone nearby.
- If it is windy or the lawn is wet or muddy, don't install an antenna.
- Use ladders made of wood, plastic or fiberglass only—no metal.

If you do plan to install or remove your own antenna, or help a friend, these are some things you should know:

- Learn how to treat electric shock injuries in case an accident occurs.
- Never touch a person suffering from electric shock because his or her body could conduct electricity to you. Instead, try to pull or pry the person away from the electrical source with a length of dry wood, rope, a blanket or other nonmetalic object.
- If breathing has stopped, apply mouth-to-mouth resuscitation until a doctor or ambulance arrives.
- When calling an ambulance, tell the hospital that someone is suffering from electric shock so they bring the right equipment.

For more detailed information about safe installation and removal of antennas, get a free copy of "10-33: CB Alert Sheet," by writing: CB Alert Sheet, Consumer Product Safety Commission, Washington, DC 20207.

NATURAL POLLUTION

Now that U.S. motorists have had to spend billions of dollars for emission-control devices, scientists are discovering that large amounts of air pollutants of the type associated with auto emissions come from natural sources. Natural emissions may exceed the contribution from human activities in the U.S. by as much as four times, shows a study funded by the Environmental Protection Agency. . . . Another EPA study shows high levels of photochemical ozone in remote areas during late night hours with little relation to commuter rush hours. . . . A San Francisco Bay Area study says a combination of heavy winter rainfall and natural emissions from vegetation contributes to heavy urban smog in the summer. . . Resources for the Future says that even before the Clean Air act, which forced installation of emission controls, cars accounted for only about 4 per cent of toxic air pollutants.

WHY US?

We suppose stranger things have crossed our desk, but we really can't remember when . . .

We received a press release informing us of the existence of a creature called (unofficially) the Guccilac. What is it? Well, it's a cross between a Gucci and a Cadillac. Designer Aldo Gucci (of Gucci loafer fame) has added some frills to a run-of-the-mill Caddy and come up with a car complete with:

24-Karat gold-plated hood ornament, geometrically-shaped designs on all upholstered surfaces, a complete set of fitted Gucci luggage in the trunk, and other juicy tidbits.

Again, we don't know why the item came to us, since the cost for this little gem will be about $21,000. You probably won't see a whole lot of them parked outside the airman's club. . . .

PORTABLE INTOXICATION CHECKER

By breathing directly into this ALCO-CHECK device, you'll learn whether or not your blood alcohol level (BAL) exceeds the legal limit of intoxication as established by law, claims the manufacturer. The green (OK), yellow (CAUTION), or red (DON'T DRIVE) light system warns you of approaching unacceptable limits.

Developed in Sweden where alcohol laws are most stringent, the ALCO-CHECK can give you the real lowdown on your condition. Since many of us tend to under-estimate our degree of intoxication, this device could be, at the very least, a license-saver, and at the most, a life saver.

It's priced at about $80 and is imported by Auto World, 701 N. Keyser Ave, Scranton, PA 18508.

NHTSA UNCOVERS THROTTLE PROBLEM IN '71-'73 TOYOTAS

Owners of 1971-1973 Toyota Corollas and Coronas with 1,600 cc engines are being warned of the possibility of throttle sticking. NHTSA has started an investigation into the problem.

So far, there have been eight consumer complaints, but no reports of personal injury or property damage.

NHTSA's investigation shows that in models made before March 1973, the heat tube, which runs through the exhaust manifold into the choke chamber, has a history of cracking, allowing exhaust contaminants to be drawn into the chamber where an accumulation of sludge can bind throttle linkage.

In March 1973, Toyota changed the design to allow room for the heat tube to expand and contract.

Some 270,000 vehicles may be involved. NHTSA says the problem could be signaled by hard starting, rough idling, or stalling, but also says it could occur while driving without warning.

Motorsist are urged to call the NHTSA hotline with details.

EDUCATION NEWS

Motorcycle Safety Foundation (MSF) spokesman Dr. Allen R. Robinson reports interesting stats from a study conducted in Denver, Colorado. The one-year study showed that motorcycle education courses do more than teach people to ride. MSF figures indicate that 30 percent of students in rider education courses learned that "motorcycling is not for them." Going a step further, Robinson noted. "Some people have criticized the industry for enticing people to buy motorcycles by teaching them to ride. Nothing could be further from the truth. Only 40 percent of those who complete the course get a license within six months."

ALL THE POOR YOUNG MEN

High insurance costs are making the under-25 male new car buyer a thing of the past, says *Autoweek*. These shoppers are checking out the cheap transportation specials at the back of the lot and paying less for insurance, say car dealers; in Boston, for instance, one year of coverage on a new Granada costs the first-time buyer $1538.

MILEAGE GUIDE AVAILABLE

The 1979 *Gas Mileage Guide* is now available in car dealers' showrooms and at the Consumer Information Center where free single copies can be obtained by writing to Fuel Economy, Pueblo, CO 81009. Bulk copies can be requested from Fuel Economy Distribution, Office of Administrative Services, Energy Dept., Washington, DC 20545.

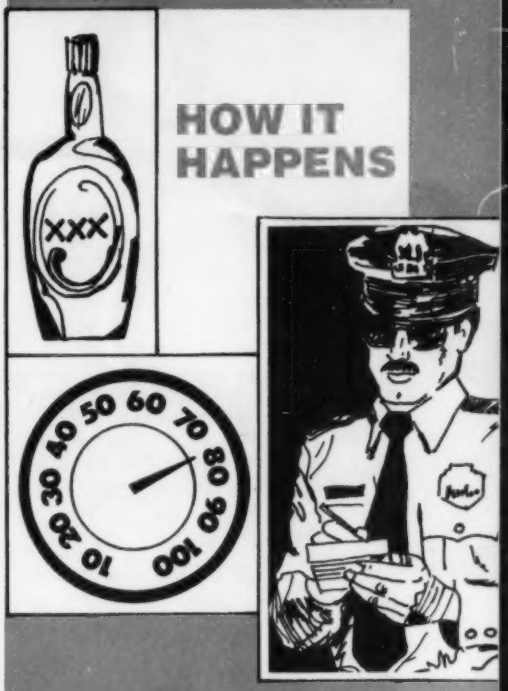
As usual, there are two versions of the guide—one for California and one for the other 49 states. The guide contains basic information about new car, station wagon and light truck models and their estimated miles-per-gallon (mpg) ratings.

The 1979 guide gives only one rating for estimated mpg instead of city, highway and combined mpg ratings used in the past. The new mpg ratings are equivalent to earlier city ratings. The change was made because studies showed that this rating is closer to what most people actually get in day-to-day driving situations.

DO YOU NEED A HELMET?

Do you need to wear a helmet while riding your motorcycle? Are helmets effective? Dr. Eugene Alvarez, writing for the October issue of the *American Motorcyclist,* prefers the simple, pragmatic approach to test helmet effectiveness.

"Just find a blunt instrument and hit yourself on the head. When you wake up, repeat the procedure with your helmet on. The point should be clear enough."



HOW IT HAPPENS

Capt Nacho D. Mann is traveling down a freeway on his way to work, moving along at a bit below the speed limit in the right lane of traffic. His left front tire blows out, but he manages to stop the car on the right shoulder without losing control.

Should he:

A. Sit back and eat his lunch?

B. Get out and change the tire?

C. Move as far over to the right as possible, put out warning markers, leave on his hazard flashers, and *then* change the tire?

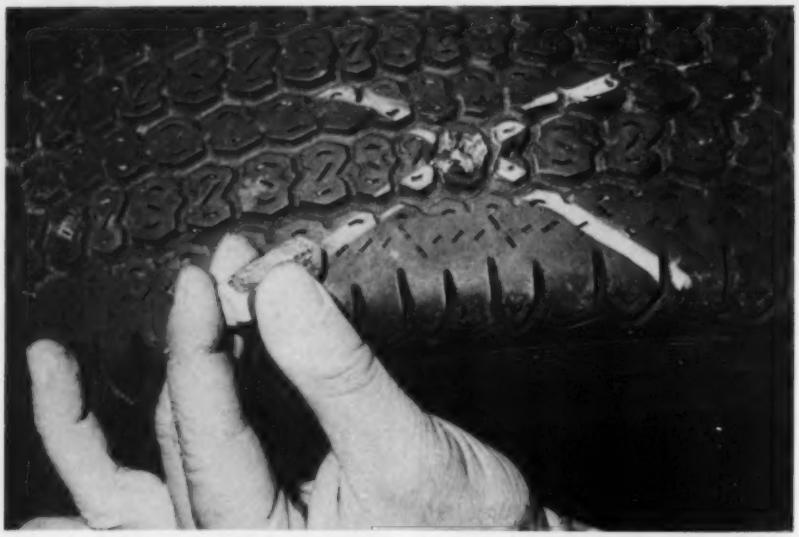
D. Get to a phone and call a wrecker?

E. Turn on the hazard flasher, drive the car slowly on the shoulder to the nearest exit, get off the freeway and *then* change the tire?

F. Flag down a patrolman and have him warn the traffic, and *then* change the tire?

G. Abandon the car and hitch to work?

Maybe that's a bit confusing. The key point to remember is not to try changing a tire on the freeway—you're likely to be hit. So there are two correct choices. First, if you can move the car, E is correct. Figure you've destroyed the tire anyway and get off the freeway before you change it. If you can't move the car for some reason, D is the right answer. But *never* try to change a tire while you're on a freeway.



STEP 1: Inflate the tire to about 20 psi and use soap solution to locate puncture. Deflate the tire completely. Demount the tire carefully, using ample lubricant to prevent bead damage.

STEP 2: Locate and mark the damage. Remove the puncturing object and gently probe for evidence of separation and run-flat damage.

The routine usually goes like this: you pull into the gas station and tell the attendant, "I've had a flat tire and it's in the trunk . . . can you fix it?" The guy says, "Sure," pulls the tire out of the trunk and wheels it into the dark recesses of the garage. About 35 seconds later, he's back with the tire and says, "OK, that'll be $4.50."

Of course, sometimes, they'll try to fool ya and say, "Sure, we can fix it, but you gotta leave it for two days!" It all comes down to the same thing . . . many stations just find the hole, use an air gun to put in a plug drenched with rubber cement, add some air, and give you back your "repaired" tire. It usually lasts until you're out of sight of the station. Sometimes, though, it'll hold up until you're on the freeway with the trunk loaded and all your relatives in the car . . . and a blowout at that point is not only irritating, it's dangerous.

We asked Firestone Tire Co. if there was really a correct and thorough way to patch tires so that they would be safe as well as sound. They told us "YES," and then gave us the step-by-step description of the best way to correctly seal a puncture in a bias, belted bias, or radial tubeless tire. They also gave us some safety tips that can really help save your bacon.

So, if you get a flat, take this issue and get on down to the base hobby shop. If you're too far away from the hobby

for Tubeless Tires

shop, take it to a reliable garage and tell 'em you want the tire patched *this* way, and this way *only*. After all, your safety, and the safety of your passengers, is too important to trust to a second-class tire repair job!

SAFETY TIPS

■ *Never* repair *any* tire without internal inspection for evidence of damage caused by running the tire while flat.

■ *Never* repair tires with run-flat damage, tread or ply separation, or defects.

■ *Never* repair tires which have less than 1/16-inch tread depth remaining.

■ *Never* repair damage greater than ¼-inch in diameter.

■ *Never* repair damage outside the repairable areas shown in the accompanying illustrations.

■ A SPECIAL WARNING . . . NEVER INFLATE THE TIRE BEYOND 40 LBS PRESSURE! If, when reassembling the repaired tire, the beads have not seated by the time pressure reaches 40 pounds, *deflate* the assembly, reposition the tire on the rim, relubricate, and reinflate. After seating the beads, adjust inflation to recommended pressure. Allowing the air pressure to build within the assembly in an attempt to seat the beads is *dangerous*. Inflation beyond 40 pounds pressure may break the bead (or even the rim) with explosive force. Inspect both sides of the tire to be sure the beads are evenly seated. If not, completely deflate the tire, unseat the beads, and repeat the entire mounting procedure. If a ring-type or other bead-seating device is used, follow the manufacturer's instructions to the letter. Again, *never exceed 40 pounds* inflation pressure.

■ Although the major tire companies say that a properly repaired tire is as good as new, we still remember when a repaired tire was relegated to use as a spare only. So if we were going to carry heavy loads, or drive on freeways a good portion of our time, we would place the repaired tire as the spare, just out of habit.

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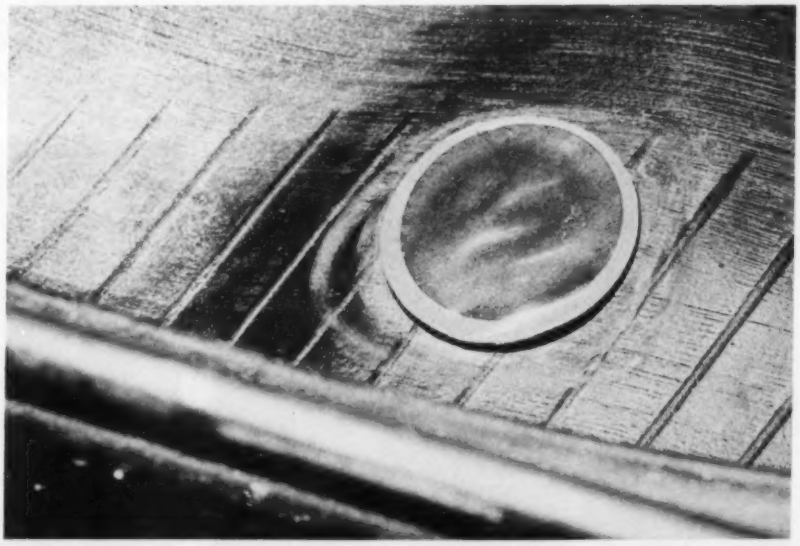


STEP 3: Spray liquid rubber buffer on the inner liner. Wet an area slightly larger than the patch you're going to use, and allow it to soak for 15 seconds. Remove dissolved material from inner liner with a scraper. Center the patch over the damage and draw a circle slightly larger than the patch.

continued

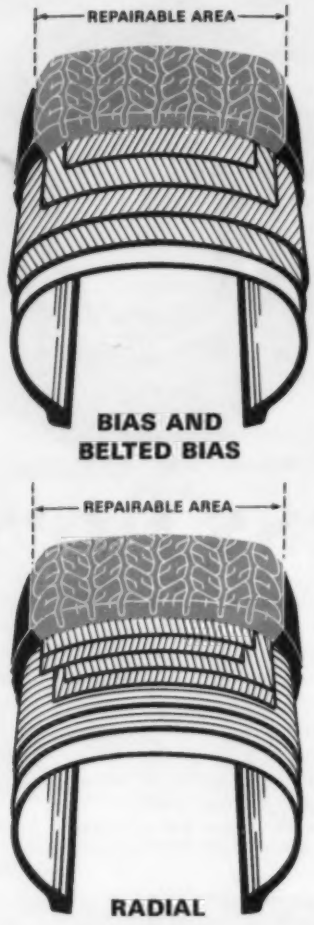
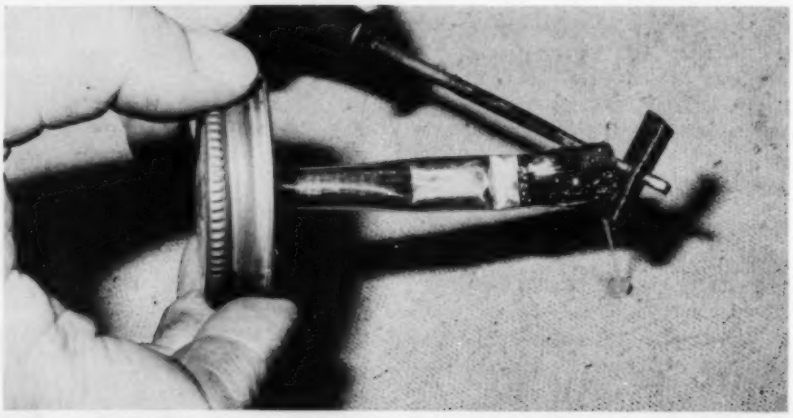


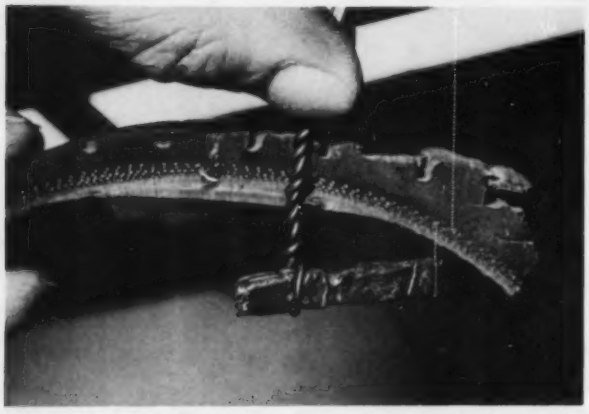
Fig. 1

STEP 4: Buff the area lightly or scrape it with a wire brush to remove molded pattern on innerliner, but don't buff *through* the innerliner. Vacuum to remove dirt and rubber dust.

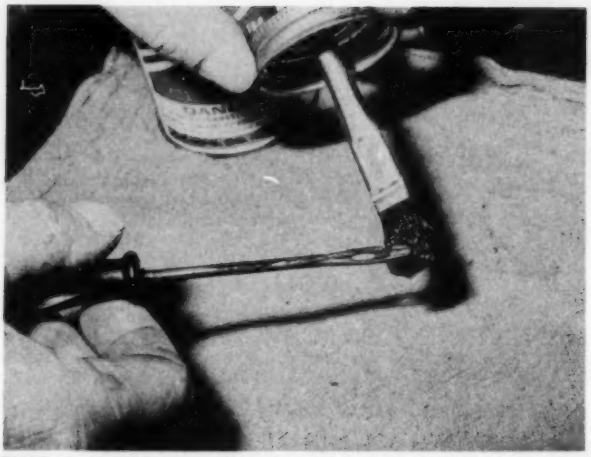


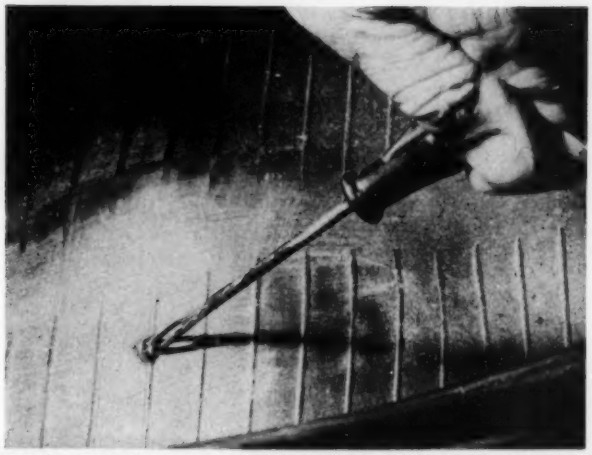
STEP 7: Attach the plug to the probe. Apply cement to the plug and the tip of the probe. Don't touch the surface of the plug with your hand, since the oils on your hand won't allow the cement to adhere to the plug.

NOTE: If the hole is too small for insertion of a plug, skip STEPS 7, 8 and 9. Use STEPS 10 and 11 instead.

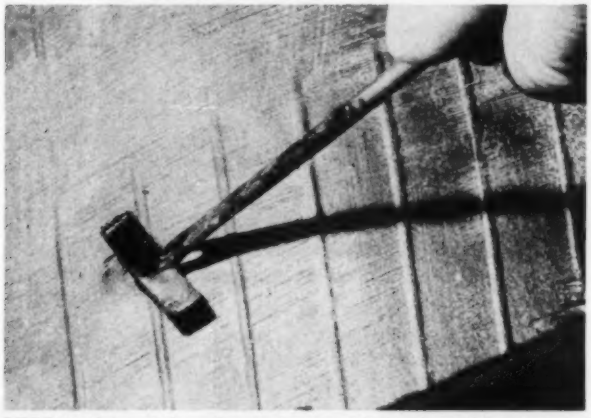


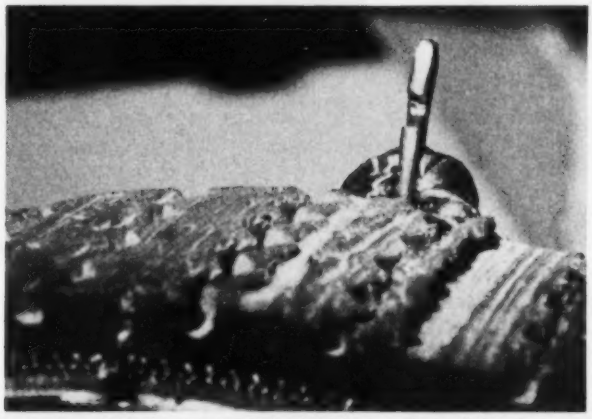
STEP 10: Insert closed end of the wire-inserting tool into the hole and pull it through to the halfway mark using pliers. Insert a plug through the "eye" of the tool about ¼-inch. Apply cement to the plug and the "eye" of the tool. (right) **STEP 11: Grasp the closed end** of the inserting tool with pliers and pull the tool and the plug into the hole, ending up with the plug end protruding slightly above the tread. Only one thickness of the plug should be required to fill the hole. Remove the inserting tool.



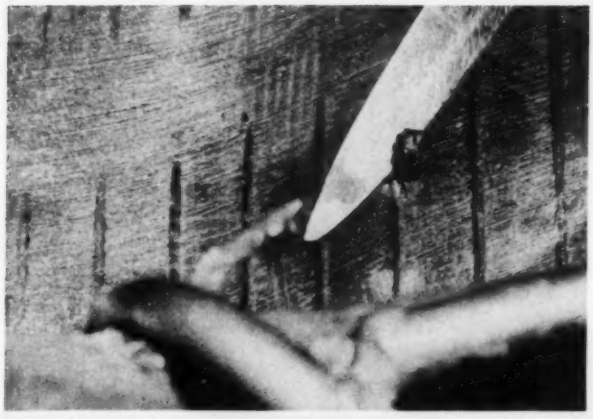


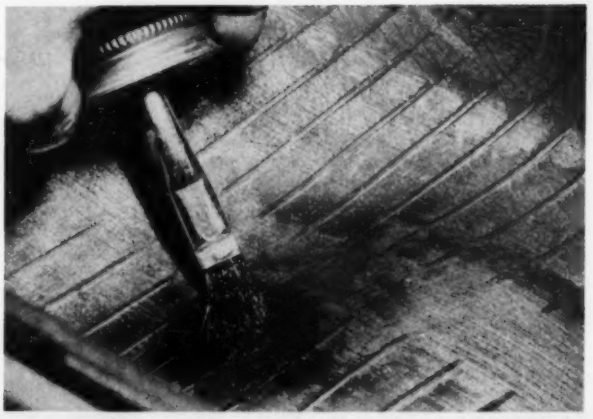
STEP 5: Apply cement to the probe/inserter, but don't do it by dipping the probe in the can of cement because that'll contaminate the cement. Be sure the cement you're using is specifically designed for cold vulcanizing. (right) **STEP 6: Insert the probe** into the damaged area and work it up and down to help remove junk from the hole. Then repeat steps 5 and 6 again. If the hole is too small to probe, then a plug isn't required. In this case, move on to STEP 13. (NOTE: If a steel-belted bias or radial construction tire has a puncture big enough to require a plug, but the hole is too small to insert both the probe and the plug without the wire cord tearing the plug . . . go to STEP 10.)





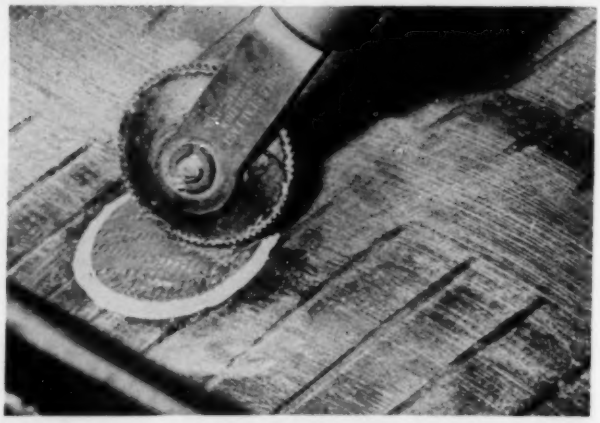
STEP 8: Insert the plug and probe into the hole. The plug must extend above both the tread and the innerliner surface. If the plug pops through, discard it and repeat STEPS 7 and 8 using two plugs on the probe. (right) **STEP 9: Probe should extend** through the tread surface as shown. Remove probe slowly and go to STEP 12.



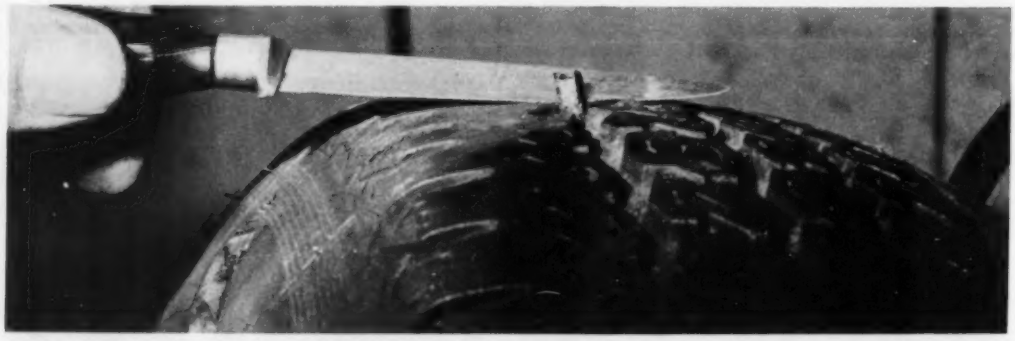


STEP 12: Trim the excess plug (on innerliner side) $^{1}/_{32}$-inch above surface. Don't pull on the plug while cutting. (right) **STEP 13: Using a clean brush,** apply cement to buffed area. Don't overlap onto unbuffed area. Allow cement to dry for 20 to 30 minutes.

continued



STEP 14: Remove patch backing, and center the patch on the hole using thumb pressure. (right) **STEP 15: "Stitch" patch down,** working from the center to the edges. Then, remove the paper or plastic covering.



STEP 16: Trim the plug 1/16 to 1/8-inch above tread. Mount and inflate the tire and use the soap solution to make sure the leak is sealed . . . bubbles will indicate air loss.

when do SNOW TIRES go up front?

Do snow tires ever go on the front wheels? Yes, if it's a front-wheel-drive motor vehicle, says the Tire Industry Safety Council. Mud and snow tires should always be mounted on the axle that propels the vehicle in order to gain the extra traction that these tires provide.

Snow tires are mounted on the rear axle on most cars, station wagons and light trucks, but since more and more vehicles are being manufactured with front-wheel and four-wheel drive, precautions should be observed.

If you have a four-wheel-drive vehicle, you should put snow tires on all four wheels for maximum traction, the Council says. Also, all four tires should be of the same diameter and construction, either bias ply, belted bias or radial.

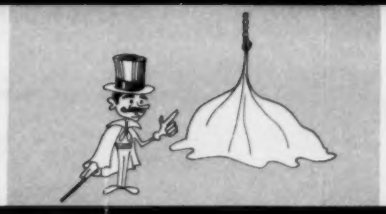
If radials are used on the front, radials should be used on the rear regardless of whether the vehicle is front-wheel or rear-wheel drive. The handling of a car can be severely affected if you have radials on front and bias or belted bias on the rear. The Council noted that in some areas if you don't have snow tires, you may be fined if you get stuck and block traffic on a snow emergency route.

Snow tires made in the U.S. since 1 Jan 1976 have the words "Mud and Snow" or some contraction, such as "M/S," molded on the sidewall under a voluntary industry standard.

The Tire Industry Safety Council offers these other tips for winter driving:

- Never reduce tire pressures to increase traction on snow or ice or in mud. Excessive heat buildup from underinflation can damage tires and reducing pressure doesn't increase traction anyhow.
- Maintain inflation pressures recommended by the vehicle manufacturer. Check tire pressures frequently. Tires lose about one pound of pressure for every 10-degree drop in temperature.
- Avoid spinning wheels at high speed on ice or snow. If your car gets stuck, gently rock vehicle backwards and forwards until sufficient traction is achieved.
- Avoid a "free-spinning" wheel. When one wheel is stuck and the other is not, the free wheel on an axle with a conventional differential gear turns at twice the speed shown on the speedometer and can cause the tire to explode, resulting in vehicle damage and personal injury.
- Check with the highway patrol or state police to determine if and when studded tires are permitted in your state. Some states ban metal-studded tires and many have time limits.
- If you use snow tires, store regular tires on their sides in a cool, dry place. Make sure they are out of the sun and away from electric motors which produce tire-damaging ozone. Stack white sidewalls facing each other to keep the white area clean. Mark wheel positions of radials so you can put them back on the same wheel to maintain direction of travel.

LETTERS to the EDITOR — BACKfire



A REAL PROBLEM!

Our office receives your magazine monthly and many of the tips given have been extremely useful.

The problem I'm having with my automobile has been extremely frustrating and I'm writing this letter in the hope that someone else has experienced a similar problem and found a solution to it.

I have a 1975 Fury Brougham and am experiencing a continuing problem with directional control despite all efforts to prevent it. The steering wheel appears to have a built-in tendency to constantly shift about two inches, pulling the car toward the left of the road. This pull is increased as the speed of the car increases. As a result I must constantly fight the steering wheel, pulling the car back towards the right. I have experimented with it by letting the wheel go and it practically completed a 360 degree circle to the left on its own.

Attempting to correct the problem, I've had numerous alignments, centering device checked and adjusted, pitman arm and new steering chuck installed, plus I bought two new front tires. I've written a letter to NHTSA concerning the problem, but haven't received an answer from them as yet. I had all the things done to correct this safety problem at a Chrysler-Plymouth dealership and they seem to be at a total loss as to how to correct the problem.

I would appreciate any advice and help you can give me. My car was not listed in the recall campaigns denoted in your October issue.

HMC William M. Wallace, USN
6375 Woodgreen Drive
Millington, TN 38053

First, double check all front-end alignment settings with a second alignment specialist. It seems you've covered all the bases, but it sometimes pays to get a second opinion.

If you still have the pulling problem, Chrysler advises that you get on down to your Plymouth dealer and ask him to take about ⅛-inch off the front strut bushing on the side opposite the pull. If that helps, he can whittle off a little more, but no more than ¼-inch total.

THAT'S SHOW BIZ!

In the Sep '78 issue under "The Editor Speaks," the statements were made that " . . . ads along these lines . . . possible they have some subtle effect on our own operation of cars and cycles? Do they encourage us to take silly risks? . . . there is a lot of clever illusion . . ."

Ten pages later, diagrams indicate a truck with one wheel mounted on the left side and two wheels mounted on the right side, a pet hanging out the window of an auto, a driver with left rear wheel on the double center line, children in the back of a van obviously not wearing seal belts, and a driver with an extremity hanging out of the driver's window.

Couldn't these also be misconstrued as subtle effects and clever illusions? Tch tch.

Ms. Alice Hensley
5200 32 Ave S.
Minneapolis, MN 55417

This letter caused some lively discussion around the office. In the column about "clever illusions" we were talking about high-speed chase scenes in the movies and on TV shows and ads, where the driver is assisted by special ramps, computer calculations, roll bars, special weights, and a lot of other stuff the viewer can't see. We were wondering if anybody was ever tempted to try to imitate this fancy driving because he didn't realize how carefully it had to be done. The diagrams in the same issue were cartoons showing different types of centerline markings. We hope that when we print a cartoon with a big dog sticking his head out the passenger window you don't think we mean it's OK for your dog to do that. You don't, do you? You don't think we hate dogs, do you? Alice, this is a sensitive bunch around here. Tell us you understand!

WHAT IF . . .

I have just finished reading your September issue, and when I read the letter about mandatory helmet laws I just had to write.

As far as the man's comment on taxes partially paying for emergency rooms, that part is valid. So why not impose the same helmet regulations on drivers? It's just as easy to bust your head on a windshield as on pavement.

People are always preaching about how good helmets are. I would like to relate a story about how useless one was. My roommate went to Baltimore to spend Labor Day weekend with his family. Along the way, he bought a new DOT-approved helmet because his aunt had said she wanted a ride on his bike.

He was giving another girl a ride when a car swerved into his lane (my buddy was doing 5 mph below the posted speed limit) and forced my buddy off the road. The bike sailed off a 10-foot high embankment and into a pond. The girl, who was wearing the brand new helmet, was thrown clear of the bike and landed in shallow water. The helmet shattered and the girl spent two weeks in the hospital in a coma.

As far as I'm concerned, when the man upstairs calls, you're going whether you wear a helmet or not. For those of you who agree with me, why not join ABATE (American Bikers Against

Address your letters to: Editor
DRIVER Magazine
AFISC/SEDD Norton AFB CA 92409

Totalitarian Enactment). If you have never heard of ABATE, you can find their ads in most Biker Magazines. "Let those who ride decide."

ETN3 G. E. Baise, USN
HELMINERON 14
NAS Norfolk, VA 23511

Helmets can have manufacturing defects, as can cars, erector sets, and pickle jars. Our only question is: If the helmet did shatter upon impact, that means it absorbed some of the energy, so if the woman got a concussion out of that, *how badly would she have been hurt if there was* no *helmet to absorb impact?*

In another letter, a man told us of a friend who was injured by "fragments" of a helmet imbedding in his brain . . . again we ask: If the blow was bad enough to fragment a helmet, what would his injuries have been if his skull *had been forced to absorb the impact?*

MANDATORY HELMET LAWS

I would like to state the opinion of a non-cyclist on mandatory helmet laws.

Too many laws, rules, regulations are intended to protect society from indirect and minor effects of potentially hazardous acts by individuals (don't swim here, you might drown; don't hike there, you might get lost; don't ride without a helmet, you might get hurt).

True, hospitals and emergency services are partly financed by taxes; insurance rates would be lower if there were fewer serious injuries. But in the examples given, the "hazardous" acts do not endanger other individuals to a believable degree, and any harm done will be suffered almost wholly by the individual undertaking the act.

In these cases the decision to accept a risk should be made by the person who undergoes the risk or pays the cost (money or inconvenience) of not accepting the risk. Society's action should be limited to education (so individuals understand the risk) and incentives (provide free helmets; reduce insurance rates for people who follow specified safety practices).

DRIVER is always welcome to my "IN" basket.

LCDR T. D. Turner, USN
USTDC J35 Box 24
APO San Francisco 96263

Commander Turner is certainly right about the importance of education. Trouble is, there's so much wrong *information about helmets being spread around the country under the banner of "education." All you riders–no matter how you feel about helmet laws –please read our interview with Harry Hurt in last month's issue.*

BRIGHTER HEADLIGHTS

In your "Timely Topics" column of the Sep '78 DRIVER, you had a short article about brighter headlights being approved by the DOT for autos. I feel this approval is way past due, as do many other drivers.

Unfortunately, in some states any headlight that throws a beam of over a certain candlepower (40,000 in Florida, for instance) is illegal. I ran into this problem with halogen headlights that produced 68,000 CP while stationed in Florida in 1969-71.

Readers should be advised to check with the state patrol in the state where they are stationed to ascertain what, if any, maximum candlepower is allowed for headlights in that state. This is especially necessary in states like Florida where, during the annual inspection, they check the candlepower output of the car's highbeam lights. At the least, it would require replacement of the expensive lights with the older type (a waste of money for the new lights if you can't use them) and could result in fines in some states.

SSgt Walter C. Speake, Jr., USAF
8th Military Airlift Sq/DA
McChord AFB, WA 98438

Seems likely the states will fall in line with DOT on this one. General Motors' Guide Division is already producing rectangular halogen lamps that will be optional equipment in four-lamp systems on some 1979 GM models. General Electric, Westinghouse, and Wagner Electric plan to have the new lamps on the market by the time you read this. Remember, DOT's approval is for sealed-beam headlights, which still excludes many European-made halogen lamps.

SAND vs KITTY LITTER

In reference to your "Anti-Freeze" article in the Oct '78 issue, I have found a substitute for using sand.

It is often difficult to purchase a "small" quantity of sand; and salt collects moisture in trunks and can cause damage to the carpeting and/or metal flooring of the trunk.

However, anyone can easily purchase a five-pound bag of "kitty litter," at convenience, drug, grocery, pet, or commissary stores! The litter will provide traction when needed; comes conveniently packaged, and can be left in the trunk year-round without fear. If it should spill, it can be swept or vacuumed up very easily.

Ms. Jan Patterson
2154 Comm Sq/DAFC
Whiteman AFB, MO 65305

Thanks for the tip, Jan.

☆U.S. GOVERNMENT PRINTING OFFICE: 1978—683-012/3

COMING SOON
to a theater on your base

The Air Force Safety Story

SS 226
Don't Miss It!

DRIVER never prints pictures of gory crashes, but we're making an exception this month in order to publicize a new motion picture, "The Air Force Safety Story," which will be released in the spring. Of course, this wasn't a real crash anyway. The fellow hanging out the car door is our technical editor, SSgt Don Holt, in full make-up for his brief appearance in the film.